Vol. XXVIII. Part 12.

NATIONAL MUSEUM OF VICTORIA

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The Journal of the Department of Agriculture of Victoria, Australia.

December, 1930

PRINCIPAL CONTENTS

Common Colics of the Horse

Tomato Investigations at Bendigo

Cincturing Citrus Trees

Prune Drying

Standard Herd Records

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THE JOURNAL

OF

THE DEPARTMENT OF AGRICULTURE

VICTORIA, AUSTRALIA.

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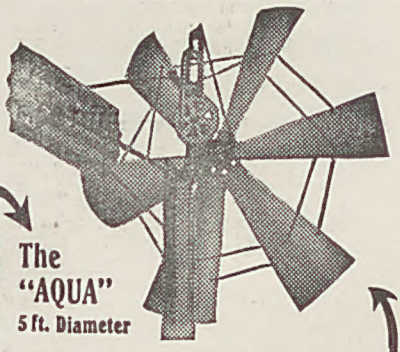

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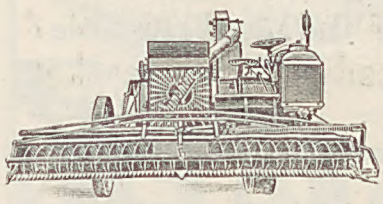

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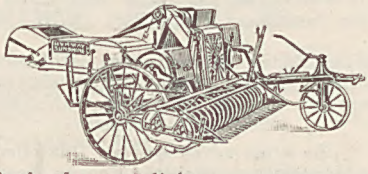

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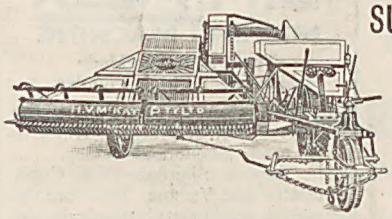

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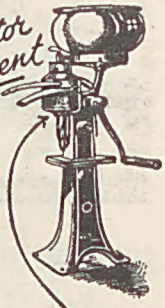

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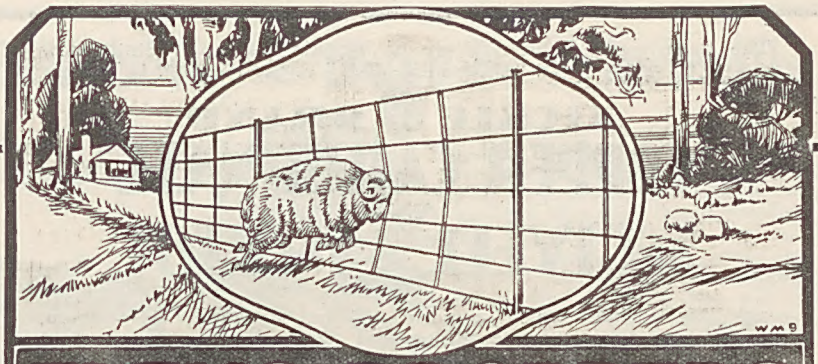

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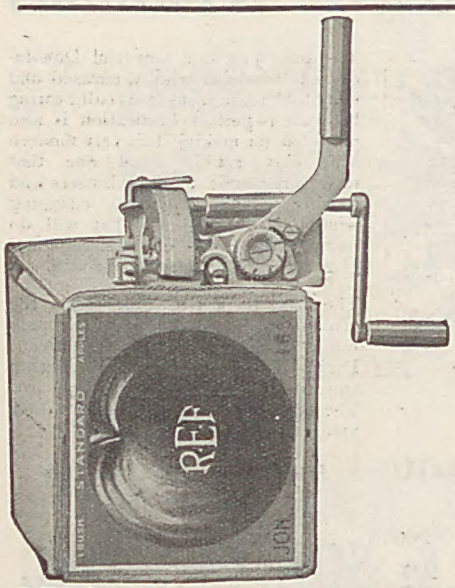

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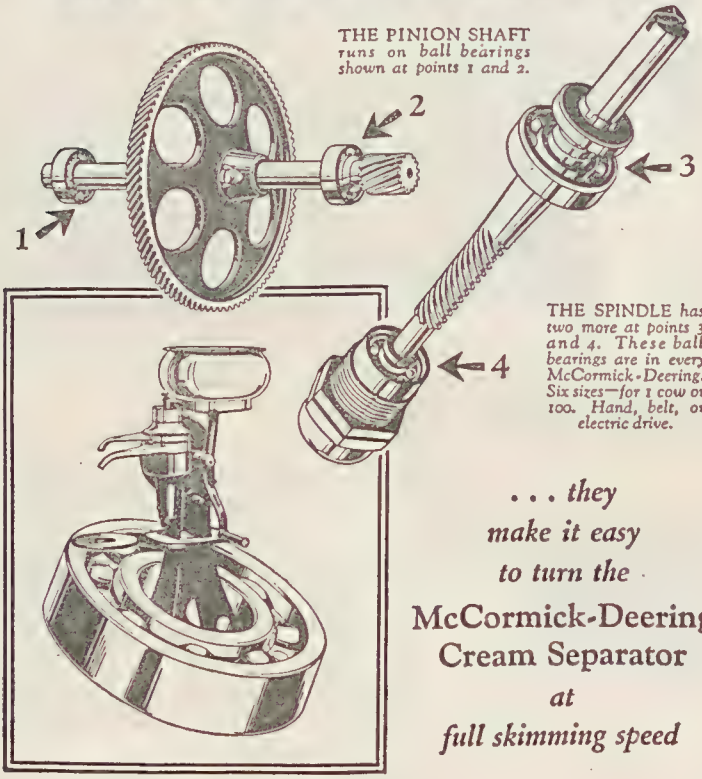

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VICTORIA.

Vol. XXVIII. December, 1930. Part 12

COMMON COLICS OF THE HORSE.

By R. N. Wardle, B.V.Sc., Veterinary Officer.

Definition of Colic.
Anatomical Features.
Causes of Colics.
Spasmodic Colic.
Impaction Colic.
Sand Colic.
Flatulent Colic.
Wheat Engorgement.
Sand in Horses.
Drenching.
Enemas.

[*The various lines of treatment given in this article should be regarded as those of first aid, and whenever possible a veterinary surgeon should be consulted.*]

Definition of Colic.

The word colic is the name given to a variety of disorders in which the most noticeable symptom is a manifestation of abdominal pain, and this pain is due to some form of irritation of the stomach or of a particular part of the intestines.

There is a great number of varieties of colic, and the different names given to these generally have a bearing on the seat of the trouble as well as on its nature, for example—

Impaction of the colon or large intestine, which explains itself, is one of the most common forms of colic.

Gastric tympany, or excessive gas in the stomach, is another form of colic.

Anatomical Features of Horses.

A few facts about the digestive organs of the horse may be instructive as well as interesting.

Relatively, the stomach is of small content, whilst the large intestine has a great capacity; the caecum or "water gut" is also comparatively large; there is no gall bladder in the liver for the storage of bile fluid.

The combined length of the small and large intestines is almost 100 feet.

Because of the anatomical position and structure of the stomach, the horse, except in rare cases, is unable to either vomit food or to eructate (bring up gas), and by keeping this fact in mind one will realize that any gases or foodstuffs present in the stomach must pass through the 100 feet length of intestine before they can be ejected. Where vomiting does occur it is almost always accompanied by rupture of the stomach and subsequent death.

The large intestine, in which the greatest number of cases of impaction both of ingesta (foodstuffs) and of sand occurs, is so arranged in the abdomen that there are three flexures or bends, and the lumen varies considerably. It is at two points particularly where the lumen of the intestine becomes smaller that impaction frequently occurs.

Treatment by Veterinary Surgeon Desirable.

Although there are cases of colic from which horses recover, either with the administration of one dose of medicine—usually a drench—or even without any aid whatsoever, it is desired to impress on horse-owners that at the onset of a case of colic, the severity of the pain shown is not always an indication whether the case will be a mild one, in which recovery will take place rapidly; or whether the illness will be prolonged and consequently serious.

Now practically all forms of colic are relieved only when the offending material setting up the condition is passed along the bowel and finally evacuated; hence it should be realized that the most desirable medicines for the treatment of colics are those whose action is quickest. These drugs, of which there are several, are used in very small doses, and are given as hypodermic injections by practising veterinary surgeons who also have many other aids for the treatment of colic cases that are not otherwise available to the horse-owner.

For this reason it is advised that, where a practising veterinarian is available, he be called in at once. If this were done it is considered that most of the cases that end fatally would be saved. Even in less severe cases recovery would be more rapid than it usually is without the veterinarian's aid.

This practice of calling in a qualified veterinary surgeon early is adopted by the large carrying firms of the big cities, and they find the action profitable, in that rapid recovery means maximum efficiency for their teams.

The same practice would be profitable also with the farmer, although the expense—owing to distance—may be greater.

Causes of Common Colics.

Being a complaint of the digestive organs—stomach and intestines—it is naturally apparent that the causes of most colics are some abnormality in connexion with the food content of these organs.

There may be overfeeding; there may be flatulence due to gas formation during fermentation; or there may be a stoppage in the intestinal canal, due either to accumulations of ingesta or of sand. Bacteria, which are present in the digestive tract, also play a certain role in cases of colic.

The general exciting causes of colic are aptly described by Caulton Reekes as "errors in the proper distribution of work, rest, watering, and feeding."

Let us take these factors in order—

(*a*) Work.

A horse should not be put into heavy work immediately after eating a large feed. If yoked up at once after feeding, he should be allowed at least half an hour before being asked to exert himself greatly. Then after a long exhausting period of work, he should be watered whilst hot—not when half cooled down—then allowed a little time before being permitted to eat, so that his circulation and breathing may become normal. If possible, he should be given a small easily digested feed during the morning, and afternoon rest periods in addition to his usual meals.

(*b*) Rest.

Periods of rest such as week-ends and holidays are times when rationing of fodder should take place. These are not the times to fill the horse up in order, as is often said, to fit him for his working days. During these days of rest, often in a stable and with no exercise, light feeds should be the order; at regular times a little laxative diet, such as green stuff and bran mashes, can be given with advantage. The giving of two or three packets of Epsom salts in a small bran mash every week-end is an excellent procedure to adopt.

(*c*) Watering.

It is generally considered that watering should take place before feeding, and this procedure is undoubtedly correct, especially after work.

After a period of work the body is greatly depleted of fluid which must be replaced before the tone of the system can be restored; this is best done by watering the horse whilst he is still hot, rather than waiting until he has partially cooled down; he will then be better fitted to do justice to his feed. Watering after feeding, when the feed is taken whilst the horse is more or less exhausted, as is the case after work, is one of the most common causes of attacks of colic. First thing in the morning, however, especially during cold weather, a horse will not drink before eating, and provided a period of, say, half an hour elapses between the finish of feeding and watering no harm will be done.

In some stables water is provided in the stalls, and the horse drinks just when he desires; this system is quite good.

(*d*) Feeding.

In his natural state the horse roams over large tracts of country, eating as he roams. He is a continuous feeder, with the result that once the stomach has become filled to a certain degree, partly digested food is passing out of the stomach into the small intestine more or less continuously.

We should consider this fact when horses are being artificially fed, and the advice, "Feed small feeds frequently" is tendered.

Thus the giving of four smaller feeds is better than three large ones. The food should be of the best quality. Of all domesticated herbivorous animals horses can withstand least any defective foodstuffs. Good oaten chaff may form a maintenance ration, but for working horses an addition of oats and/or bran is necessary.

Horses should be separated for feeding. When several have to feed together, it is found that some will be prevented by fear from getting their share, and the amount they do get is often bolted; the greedy feeder also bolts his food in order that he may eat more than the others in the same time. In these cases there will be insufficient mastication, and indigestion, and perhaps colic, will result.

Teeth defects are also the cause of indigestion. Horses should be watched when they are feeding, and evidence of faulty mastication, such as the slobbering of saliva and the dropping out of food noted. In such cases the mouth should be examined and any defects of the teeth remedied by an expert.

After long and severe work it is very unwise to place a large feed before a horse. The digestive organs are not then in a state to cope with a big quantity of food. Water should be allowed, first of all, but until the animal has recovered from fatigue food should be withheld.

Changes in diet should be brought about gradually. Colic may be caused by giving hard feed solely to horses brought in from grass. By commencing with a bran mash or two, then chaff and bran in equal proportions, damped for preference, and then gradually reduced amounts of bran, horses may be brought in to an ordinary ration in a week without risk of illness.

Sand is picked up by the grazing horse in two ways:—1. On sandy country the soil is loose, and often sparsely covered with herbage. In grazing, the grass is eaten close to the ground, and sand is thus picked up with almost every mouthful. Also after rain or wind quite appreciable amounts of sand are splashed up on to the leaves of grasses and weeds, and thus taken into the digestive tract when such herbage is eaten. 2. The habit stock have of licking and eating soil, apparently endeavouring to rectify a deficiency in mineral matter, is not an uncommon method by which sand may reach the intestines.

In the first instance, if a stock-owner turns his horses out on light sandy country when sparsely grassed he must realize the risk he takes in getting them "sanded." The second instance may be rectified by supplying mineral matter to the horses in the form of a salt and bone-meal lick.

Spasmodic Colic.

The name is derived from the fact that the pain shown by the affected animal is not constant, but keeps on occurring at short intervals between which the horse is free from pain symptoms.

As a matter of fact, this peculiarity need not be confined to one class of colic as diagnosed by a veterinarian; hence the name "spasmodic" in reference to colic is more a popular than a scientific term.

Cause.

Most cases in which the pain is spasmodic, however, are concerned with the small intestine and stomach, and the cause is the imperfect mastication of dry food—generally chaff—which becomes impacted in the small intestine close to its opening into the caecum, or in some cases the impacted material may be in the first portion of the small intestine which is shaped like the letter S; in these latter cases the stomach becomes involved generally by reason of gas formation. This form of colic occurs where the horse is worked too soon after feeding, or may be during work in hot weather, and where dry chaff is bolted in an unmasticated form.

Symptoms.

The pain evinced is acute, and the animal shows this by often throwing itself down and rolling violently, then getting up again, and perhaps remaining quiet for a short interval; then we see a repetition of the performance. Respiration is hurried, and often the patient breaks out into a profuse sweat.

The patient will often attempt to pass water by stretching out. This should not be taken to indicate a stoppage of the water, and inhumane, irritant measures should not be adopted to make the horse pass urine. Get the patient over the bowel trouble, and it will have no difficulty in voiding urine.

On listening at the abdomen one often hears a tinkling sound instead of the normal movement of the healthy organs. Rectal examination by the hand helps to prove that the large intestine is not the seat of trouble as the portion that can be felt is quite soft.

Faeces (manure) may be passed in fairly normal amounts during the attack. Relief is obtained when the dry material commences to pass into the large intestine. The more severe cases of this form of colic are those in which gas formation occurs in the stomach and that part of the small intestine in front of the impaction.

Occasionally fatal cases occur, and these may be the result of a twist occurring in the intestine.

Treatment.

A drench may be made from—

Raw linseed oil, 1 to 1½ pints.
Oil of turpentine, 2 oz.
Aromatic spirits of ammonia, 2 oz.
Tincture nux vomica, ½ to 1 oz.

The components should be mixed together and the drench given immediately the attack commences. The mixture suggested makes an excellent first-aid drench for most kinds of colic. If such a drench be administered properly much good will be done, and its action will not be detrimental to any further treatment given by the veterinarian should one be called in. One hour after the first drench the following mixture may be given:—

Aromatic spirits of ammonia, 2 oz.
Sweet spirits of nitre, 1 oz.
Water, ½ pint.

And this may be repeated in two hours' time.

In all these common colics the patient should be made as comfortable as possible, and placed in a protected yard or large loose box with a soft, well-bedded floor and allowed to roll. Water should be allowed whenever the patient desires, and a regular rubbing with wisps of straw should be carried out.

On no account should opium preparations—laudanum or chlorodyne—be used in the treatment of colic cases. Their administration may allay pain temporarily, but as they tend to stop bowel movement they are absolutely harmful.

Impaction Colic.

Under this heading the complaint to be dealt with is the common form of food impaction, namely, "Impaction of the Large Colon." It is invariably due to overfeeding—often the result of injudicious feeding during week-ends and holidays.

Symptoms.

Before showing actual pain the horse may appear dull and listless; when pain appears it is of a dull type. The patient may paw with his feet, walk around his box or yard and look around at the flanks; later, after making several ineffectual attempts, he will lie down, and, apart from looking around at his flanks and giving one or two partial rolls, may remain in the recumbent position for a considerable time.

Examination by way of the rectum will directly prove the diagnosis, as the engorged and impacted large intestine can be felt. Any manure present in the rectum will be rather dry and formed, and generally that passed out is in quite small quantities—two or three dry masses rather than a normal motion. The sounds of bowel movement are generally absent; when there is any movement it is of slight degree, and the sound, as ascertained by listening at the flanks, is abnormal.

Treatment.

Copious enemas, repeated every hour, should be injected. The oily drench mentioned for spasmodic colic should be given at once, and the No. 2 drench, as described in the previous case, should be given every two hours.

This form of colic is one in which rapid recovery must not be expected, and it is often necessary to repeat the dose of raw linseed oil and turpentine. Some cases extend over days, but during this time constant stimulant treatment must be given. Signs of recovery can be ascertained by listening at the abdomen for sounds of movement of the intestines, and ultimately large masses of faeces will be passed. The private practitioner should be called in; he will use powerful and quick-acting drugs and prescribe further treatment in the nature of bowel stimulants.

Sand Colic.

This is a form of impaction in which the impacted mass, instead of being ingesta, is sand. The large intestine is the portion of bowel affected, and it is invariably at the most posterior flexure or bend where the impaction takes place.

Sand may be present in the intestines of a horse for some considerable period. In such a case it is spread as a coating over the intestinal

floor, in which form it may cause a certain amount of unthriftiness. Should some condition arise whereby this sand is moved along without being expelled, it may mass up at the narrow bend of the large intestine, when it will certainly cause a serious colic.

Symptoms.

These are similar to those described under "Impaction Colic" except that the pain shown is generally much greater, and there are early signs of inflammation, as shown by the injected eye membranes; bowel movement is at a standstill, and rectal examination will help to confirm the impaction.

The blockage in the intestine is often so absolute that even gas cannot pass along, and so in these cases we have the sand colic complicated by flatulence; this is a bad sign, and may mean a fatal termination.

Treatment.

Should the impacted mass be of great extent (and the writer has seen on post-mortem enough sand to fill a stable bucket taken from a length of about 3 feet of the large intestine) the case will almost certainly end fatally.

When the trouble does not appear severe, start off with a dose of 1 pint liquid paraffin in which is shaken up 2 oz. turpentine, 1 oz. tincture nux vomica, and 2 oz. aromatic spirits of ammonia.

This should be followed in two hours by a drench of 1 pint of strong black coffee, including the grounds, and repeated at intervals. The stimulant No. 2 drench previously mentioned may be given every two hours.

Copious enemas should be given every hour, and massage or kneading of the abdomen, especially if this be done when the horse is lying in a furrow on its back, may be advantageous.

The action of some of the quick-acting hypodermic injections, as used by the veterinary surgeon when given at the outset, would pass the sand on before the impaction became acute. Whatever correct line of treatment is undertaken, the earlier it is commenced the greater is the chance of recovery.

Flatulent Colic.

This is another fairly common colic, and is characterized by the presence of gas in the intestine—generally the large one. Pain is evinced by the action of the horse going down and rolling. He shows distress in that the breathing is hurried, and, generally, he has rather a panicky look.

In the first stage, little or no distention of the abdomen is apparent, but very soon the distention becomes quite evident, and is noticed more particularly in the offside flank. When distention is extreme, rolling is not freely indulged in, and if the animal lies down it is only done with great care.

If besides tympany or flatulence of the intestines a similar formation of gas occurs in the stomach, the severity of the illness is greatly accentuated, and the symptoms, such as pain, breathing, &c., become more pronounced.

Unless the correct treatment be given in such a case, fatal results caused by rupture of the stomach are likely to accrue. Treatment of this condition will be dealt with under the heading of "Wheat Colic."

A point for especial notice in dealing with the subject of Flatulent Colic is that the symptom of flatulence invariably shows at a late stage of the progress of some colics, notably, Impaction Colic—both of ingesta and of sand—and colic due to a twist of the intestine.

In the latter case the horse will die; in the former, a speedy passage of the offending impacted mass will mean a reduction of the flatulence.

If there be inability to bring about a speedy passage of the impacted mass, then it will be necessary to endeavour to control the flatulence until such time as a free passage is obtained.

Treatment.

The "stand-by" drench of 1-1½ pints raw linseed oil and 2 oz. of oil of turpentine can be safely given, but in case there is any tympany of the stomach it is not advisable to include aromatic spirits of ammonia or carbonate of ammonia, but one teaspoonful of lysol might with advantage be added.

Copious enemata should be given frequently, and hot fomentations —given by the aid of blankets wrung out in hot water—undoubtedly help in the treatment.

Puncture of the intestine through the abdominal wall is a speedy method of reducing the tympany, but owing to the susceptibility of the horse to peritonitis this operation should be left to the discretion of the veterinarian.

Another line of treatment for flatulent colic, but which necessitates the ability of the person treating the case to adminster solid medicine in form of balls or capsules, is as follows:—Give a physic ball of correct dosage for size of horse, and at intervals of two hours administer ½-oz. doses of salicylic acid in capsules.

Wheat Engorgement and its Sequels.

Each year at harvest time cases of illness occur in horses due to the eating of wheat in more or less large quantities. As prevention is better than cure, one might issue the warning to farmers to see that fences are in good order and that gates are kept closed.

The two main sequels to wheat engorgement are Colic and Laminitis or Founder. In all cases of wheat engorgement the horses should be taken to water immediately and allowed to drink as much as they desire; in addition, they will benefit if whilst drinking they be allowed to stand in water up to their knees. The foregoing statement will be questioned by many people, but it is given with the greatest confidence and can be followed unfalteringly. After this watering, they may be left standing in the water as long as is convenient.

Founder should be treated as laid down in an article on the subject published in this *Journal* for August, 1930.

In cases where it is known that fairly large amounts of grain have been ingested it is advised that immediate treatment be given by drenching with bicarbonate of soda up to ½ lb. in as much water as can be poured down. Enemas, as described later, are also beneficial.

Where scouring takes place colic symptoms will seldom show, but founder may eventuate. A large proportion of cases where colic develops will terminate fatally unless the right treatment is given and commenced at the earliest moment.

The chief cause of the trouble is tympany, or flatulence of the stomach, and rupture of this organ is a common sequel.

Where possible the qualified veterinarian should be called in at once. If this be impossible, the following treatment should be carried out. Make a drench of—

Strong liquid ammonia, 4 drams.
Powdered sulphate of iron, 1 oz.
Water, 2 pints.

And give at once. When mixed these ingredients form a precipitate, and care must be exercised to see that this precipitate or solid material is given, and not left in bottom of container.

In addition one capsule containing salicylic acid, ½ oz., should be given every hour.

The veterinarian in treating these cases would also use a hypodermic injection of certain drugs to expel the offending wheat as quickly as possible; failing this, an aloetic ball of suitable size or a drench of raw linseed oil and turpentine should be given.

Sand in Horses.

Notes under this heading are included in this article, as sand colic is the most common colic in certain parts of Victoria, notably the Mallee, and if the advice given be followed, it is felt that large numbers of cases will be prevented.

It is a well known fact that horses in districts with light or actually sandy soils pick up sand when out in the paddocks (see notes on (*d*) "Feeding" in Causes of Colics), and that this sand may remain in the intestine for a considerable time without causing a definite illness. In a great many cases the horse with sand becomes unthrifty, sluggish, dull, and listless; the coat is harsh and dry, there is a gradual falling away in condition, and death may eventuate when the horse becomes so weak that he is unable to rise after lying down to rest. In other cases of "sanded" horses no symptoms may be apparent, but even then it is necessary to treat the horses for the removal of the sand, as sooner or later some of them, under certain conditions of work and feeding, will become affected with sand colic caused by the accumulation of the sand in one impacted mass.

In a "sanded" horse the sand lies spread out over a considerable area on the lower surface of the intestine or in small accumulations gathered in pouches; and over this sand passes the ingesta (food), ultimately to be passed as manure.

During the passage of this excreta a certain amount of sand is picked up. Sometimes there is sufficient sand in one mass of droppings to be seen at once, but in most cases it is necessary to test the manure in the following manner:—The horse is tied up in a stable and bedded down with straw; a shovelful of his manure is then picked up off the straw and placed in a bucket, which is then filled with water and stirred until all the manure is broken up. This is allowed

to settle, and then the fluid poured fairly slowly over the edge of the bucket. Several additions of water are needed, and the procedure repeated until all manure has been poured out.

Any sand remains in the bucket, and a dessert spoonful from one motion, is quite sufficient indication that an appreciable amount of sand is in the intestines.

Sometimes a "sanded" horse has a chronic diarrhoea, and in such cases the dried scour on hind legs and tail is characteristically dirty black.

After horses have been spelling on sandy country and brought into work again, it is strongly advised that they be tested for sand, and where definite evidence is found, treatment should be carried out.

If this be done at once, cases of sand colic will be minimized and the efficiency of the horse teams increased.

Treatment.

Prepare the horse by feeding three small bran mashes—one each at morning, midday, and evening.

First thing on the following morning give a drench consisting of 1 lb. honey stirred into 1 to 1½ pints of warmed fresh milk. Feed lightly on damped bran and chaff, and then follow with the undermentioned mixture—

Bicarbonate of soda	6 oz.
Sublimated sulphur	6 oz.
Bitartrate of potash	3 oz.
Powdered nux vomica	1½ oz.

Mix and divide into twelve powders. Give one powder in damped feed morning and evening for six days.

Also on the second day, a drench of 1 pint of liquid paraffin may be given, and towards the end of the week's treatment another milk and honey drench may be given.

Drenching.

Probably the safest method of drenching is by the use of a drenching bit, and any horse-owner will find this instrument a valuable one.

In no case should a drench be given through the nostril, and it is not necessary to elevate the horse's head too much. The tongue should not be held nor pulled out, but a little sideways movement of the tongue whilst still in the mouth may in some cases help swallowing.

If a drenching bit is not used it is inadvisable to try to elevate the head by pulling up with the halter; this only tightens and holds the lower jaw fast, and one can easily imagine how impossible it is for an animal to swallow freely under such conditions. Probably the best method is to insert a looped rope in the mouth and raise the head by this means, thus leaving the lower jaw free.

If a bottle be used to administer the drench, it is wise to wrap a piece of cloth around the neck and tie with cord.

Enemas.

Probably the most efficacious method of giving an enema is to use a piece of rubber hosing without any nozzle and connect it to a water supply. The hose is first taken in with the hand as far as can be, then after the tap is turned on and a few gallons of water introduced, it

will be found that the hose can be worked in further for a total distance of 4 to 6 feet. Quantities of water are passed whilst this procedure is going on, but a considerable quantity is retained, and will even run forward. This method is particularly advantageous in cases of sand and impaction colics. Failing this method, a piece of hose is connected to a force pump, and several gallons of soapy water introduced.

TOMATO INVESTIGATIONS AT BENDIGO.

REPORT ON SEASON 1929-30.

By A. G. Strickland, M.Ag.Sc., Science Field Officer.

In the early days of the tomato industry, Bendigo and district produced the major portion of the State's crop, and during that period the industry was in a flourishing condition. Recently, however, the industry has not been so lucrative, the main reasons being as follow:—

1. Owing to heavy planting during the last few years in Northern Victoria, and further plantings in the southern districts, the more lucrative early and late markets have been practically denied the Bendigo grower.

2. Secondly, the practice of growing tomatoes on the same land for a number of years in succession has resulted in the concentration of diseases—insect, fungus, and constitutional—to such an extent that yields have fallen off considerably.

Preliminary Survey.

In 1928-29, a survey of the main tomato-growing areas in Bendigo district was conducted, and the following deductions arrived at:—

1. In most instances, reduced yields were due to the occurrence of various diseases, either in epidemic form when many plants were killed outright, or in milder form when yields were undoubtedly reduced, though the plants were not so obviously affected.

2. The lack of uniformity in cultural and manurial practices was manifest. The type and quantity of fertilizer in use varied enormously from plantation to plantation; certain growers followed the practice of staking, with very good results, while others declared the practice to be unprofitable.

During the 1929-30 season, plots dealing with two main questions, viz., fertilizer practice and varieties, were laid out on the property of Mr. D. Danson, at Kangaroo Flat. Detailed yield figures were obtained throughout the season, and the recording of periodical observations on the health of individual plants was made an important feature.

I.—FERTILIZER TRIALS.

Treatments.

It was planned to learn from these trials the relative importance of the three main types of fertilizers, nitrogenous, potassic, and phosphatic. Plots received each of these types singly, and in different combinations. Other treatments included blood and bone manure, stable manure, and lime. A list of the treatments is appended:—

1. Nitrogenous.—Sulphate of ammonia, 3 cwt. per acre.
2. Phosphatic.—Superphosphate, 10 cwt. per acre.
3. Potassic.—Sulphate of potash, 3 cwt. per acre.
4. Sulphate of ammonia, 3 cwt. per acre, plus superphosphate, 10 cwt. per acre.
5. Sulphate of ammonia, 3 cwt. per acre, plus sulphate of potash, 3 cwt. per acre.
6. Superphosphate, 10 cwt. per acre, plus sulphate of potash, 3 cwt. per acre.
7. Complete.—Sulphate of ammonia, 3 cwt. per acre, plus superphosphate, 10 cwt. per acre, plus sulphate of potash, 3 cwt. per acre.
8. As 7 Complete.—Sulphate of ammonia applied later in the season (end of January).
9. Blood and bone, 1 ton per acre.
10. Stable manure, 10 tons per acre.
11. Lime, 2 tons per acre.
12. Complete as 7, plus lime, 2 tons per acre.
13. No treatment.

Application of Treatments.

From determinations of the density of the various manures, measures were made to hold definite weights of manure. The fertilizers were applied by hand to each plant in a furrow approximately 9 inches from the row, and lime and stable manure were broadcast over the entire space between rows.

The Experimental Area.

The soil is typical of a large part of the tomato land in the vicinity of Bendigo. In by-gone days, it was riddled with shallow holes made by the gold-diggers, and the result is that, even now, some of the subsoil is very near the surface. The field was ploughed up and graded some years ago, and for three seasons prior to the experiment had been under grass. It had never grown tomatoes until last season, nor received any manurial treatment whatsoever. Inspection of the area after ploughing in 1929 showed a patchy variation in the colour of surface soil. A systematic boring of the field to a depth of 4 feet was carried out in order to obtain samples for analysis.

Examination of these samples in the laboratory enabled them to be grouped into three batches, having similar visual and physical characteristics, viz.:—

1. Greyish clay loam surface, merging into yellow sandy sub-soils at 2 to 3 feet.
2. Similar surface, with considerably heavier yellow red subsoils.
3. Variants of both classes above.

Analyses carried out by the Agricultural Research Chemist (Mr. W. R. Jewell) showed the samples to be much more uniform in composition than would be anticipated from their appearance. The following table indicates the extreme range in composition of a number of selected samples from the area. These are the extreme figures, and most of the samples conformed to an average value.

Sample.	Parts per 100,000 of Dry Soil.				
	Nitrogen.	Phosphoric Acid.	Potash.	Lime.	Chlorine.
Surface—1′ ..	28–59	49–68	277–577	56–124	4–14
1′—2′ ..	31–52	40–51	317–436	42–84	4–24

The soil gave a slightly acid reaction. There was no progressive variation in the soil in any particular direction, but rather a patchy variation: a patch of soil, embracing several plots near the main road, was markedly lower in fertility owing to the presence of several large gum trees on the highway reserve.

Lay-out of Plots.

The fertilizer trials embraced an area of approximately eight-tenths of an acre, which was laid out in 70 plots, each plot being .0055 acres, excluding guard rows. A plot consisted of four rows of seventeen plants each, but as all outside plants were treated as guard rows, the ultimate plot consisted of two rows of fifteen plants each—30 plants in all. Of the 58 plots used, every third plot received no treatment, and the whole series of treatments was triplicated. The design of the experiment had certain drawbacks, but the large number of "no fertilizer" plots enabled comparison with adjacent treated plots.

Plants.

The variety used throughout the fertilizer plots was "Yellow-leaf," a strain of Large Red, which is extensively grown in the Bendigo valley. The plants were raised in seed-beds, previously sterilized with formalin in order to reduce risk of disease infection. Planting in the field was carried out at a distance of 2 feet between plants, in rows 4 feet apart, and plants were staked and pruned to two or three stems.

Observations.

1. Fruit was picked once or twice a week, according to the rate of ripening, and graded into three marketable sizes as picked. The grades were, under 2 inches, 2 to 3 inches, and 3 inches and over. At each picking, the weight and number of fruits in each grade were recorded. General records of quality of fruit, incidence of various diseases, such as blossom, end rot, grub, &c., were also kept.

2. From the seed, monthly observations were made on the general health of the plants. All diseased plants were recorded, and every plot plant had a "dossier," or record of its behaviour throughout its life.

Examination of Results.

The yields of all plots are shown in Table I. They are tabulated so that the three plots receiving a particular treatment are shown together with their adjacent "nil" plots. The final yields are expressed as pounds per plot of ripe tomatoes, plus a small picking of green tomatoes at the end of the season; yields are also expressed as tons per acre. In the column headed "Difference between treated and nil," are found the differences between each treated plot, and its adjacent untreated check. A cursory inspection of the data shows that results are inconsistent, and that in very few cases are there significant differences between treated and untreated plots. This may be attributed mainly to the incidence of various diseases throughout the plants. In the column headed "Abnormal plants" is recorded the number of plants which were unhealthy in each plot; in some plots this number is very high, and yields are greatly affected. The question of disease will be treated more fully elsewhere, but it is apparent, from examination of the data, that any difference between treatments has been masked by a much higher limiting factor—that of disease.

Two methods of examining the yields statistically have been tried, but, as expected, no conclusions can be drawn. Each treated plot has been compared with the average of all "nil" plots, and as shown in Table I., a comparison has been made between each treated plot and the "nil" plot lying immediately alongside. Probable errors have been computed by means of the "Deviation from the Mean" Method (Minnesota A.E.S. Res. Bull. 30, 1925). The standard deviation of a single plot, computed from the yields of 21 "nil" plots, is 19.2 per cent., or 47.1 lb. From this, the standard deviation for an average of three replications $= 19.2\ \sqrt{3} = 11.1$ per cent., and the probable error for such an average, $11.1 \times .67 = 7.4$ per cent.

Table I.

Replicate 1.

Treatment.	Plot Nos.	Abnormal Plants.	Weight Ripe Fruit/Plot.	Weight Green and Ripe Fruit/Plot.	Difference between Treated and Nil.	Total Fruit Tons/ Acre.
			lb.	lb.	lb.	
Nitrogen	2	15	Figures not	233	− 6	18·9
Nil	9	14	obtainable	239		19·4
Phosphorus	4	12	Figures not	204*	− 40	16·6*
Nil	11	10	obtainable	244		19·8
Potash	6	24	Figures not	178	− 59	14·5
Nil	13	13	obtainable	237		19·2
Phosphorus and Nitrogen	8	11	216	235	+102	19·0
Nil	1	18	118*	133		10·8*
Potash and Nitrogen	10	4	295	326	+101	26·4
Nil	3	9	..	225		18·2
Phosphorus and Potash	14	12	176	184	− 9	14·9
Nil	7	12	..	193		15·7
Complete	12	12	195	203	+ 33	16·5
Nil	5	14	..	170		13·8
Complete, late Nitrogen	15	6	245	280	+ 74	22·8
Nil	22	21	181	206		16·7
Blood and Bone	16	12	297	348	+109	28·2
Nil	9	14	219	239		19·5
Lime	17	9	362	432	+191	35·1
Nil	24	6	219	241		19·6
Comp. and Lime	18	17	275	294	+ 50	23·8
Nil	11	10	232	244		19·9
Stable Manure	19	13	187	197	− 26	16·0
Nil	26	15	205	223		18·1

Replicate 2.

Treatment.	Plot Nos.	Abnormal Plants.	Weight Ripe Fruit/Plot.	Weight Green and Ripe Fruit/Plot.	Difference between Treated and Nil.	Total Fruit Tons/ Acre.
			lb.	lb.	lb.	
Nitrogen	20	11	Figures not	208	− 25	16·9
Nil	13	13	obtainable	237		19·2
Phosphorus	21	18	Figures not	170	− 4	13·8
Nil	28	15	obtainable	174*		14·1*
Potash	23	10	Figures not	304	− 24	24·6
Nil	30	5	obtainable	328		26·6
Phosphorus and Nitrogen	25	17	306	325	+ 54	26·4
Nil	32	10	260	271		22·0
Potash and Nitrogen	27	15	220	231	−102	18·8
Nil	34	9	301	333		27·0
Phosphorus and Potash	29	11	231	252	+ 46	20·4
Nil	22	21	181	206		16·7
Complete	31	14	285	330	+ 89	26·8
Nil	24	6	219	241		19·5
Complete, late Nitrogen	33	13	249	285	+ 62	23·2
Nil	26	15	205	223		18·1
Blood and Bone	35	11	195*	215	+ 41	17·4*
Nil	28	15	166*	174		14·1*
Lime	36	10	243	260	+ 19	21·1
Nil	43	5	226	241		19·6
Comp. and Lime	37	11	258	282	− 46	22·9
Nil	30	5	303	328		26·7
Stable Manure	38	15	246	266	+ 60	21·6
Nil	45	16	198	206		16·7

Replicate 3.

Treatment.	Plot Nos.	Abnormal Plants.	Weight Ripe Fruit/Plot.	Weight Green and Ripe Fruit/Plot.	Difference between Treated and Nil.	Total Fruit Tons/ Acre.
			lb.	lb.	lb.	
Nitrogen	39	14	Figures not	255	− 16	20·6
Nil	32	10	obtainable	271		22·0
Phosphorus	40	11	Figures not	300	+ 44	24·2
Nil	47	7	obtainable	256		20·8
Potash	41	6	Figures not	312	− 21	25·4
Nil	40	9	obtainable	333		27·0
Phosphorus and Nitrogen	42	15	237*	244	+ 24	19·8*
Nil	49	11	212*	220		17·9*
Potash and Nitrogen	44	11	232	247	− 56	20·0
Nil	51	6	292	303		24·6
Phosphorus and Potash	46	12	297	318	− 4	25·8
Nil	53	13	308	322		26·2
Complete	48	9	296	326	+ 39	26·4
Nil	55	16	269	287		23·2
Complete, late Nitrogen	50	8	283	292	+ 51	23·8
Nil	43	5	226	241		19·6
Blood and Bone	52	14	290	306	+100	24·8
Nil	45	16	198	206		16·7
Lime	54	12	280	302	+ 46	24·6
Nil	47	7	244	256		20·8
Comp. and Lime	56	23	206*	220	...	17·9*
Nil	49	11	212*	220		17·9*
Stable Manure	58	8	335	351	+ 48	28·5
Nil	51	6	293	303		24·6

* Plots near trees on main road—small stunted plants.
Plot 1 also marked * overwatered and many plants killed.

An examination of all data has shown that in no case has there been a significant difference in yields between the differentially treated plots.

An examination of Table I. will show that the incidence of disease has, in most cases, been responsible for inconsistent results. If we take the series receiving potash and nitrogen as an example, it will be seen that plot 10 gave an increase of 101 lb. over plot 3, the adjacent

"nil" plot; while plot 27, receiving the same treatment, yielded 102 lb. less fruit than plot 34, its adjacent "nil" plot. Plot 44 (potash and nitrogen), yielded 56 lb. less fruit than plot 51 (no treatment). Explanation of these discrepancies is found in the record of number of diseased plants per plot, summarized as follows:—

Plot.	Treatment.	
	Potash and Nitrogen.	No Treatment.
	Abnormal Plants.	Abnormal Plants.
10	4	..
3	..	9
27	15	..
34	..	9
44	11	..
51	..	6

Plot 27, which gave a smaller yield than the "nil" plot, had fifteen plants affected with disease, whereas plot 34 had only nine affected plants. An analysis of disease figures will be given later. "Blue-top" proved a troublesome disease, as plants affected with it were totally unproductive. Taking into account the number of diseased plants per plot of 30 plants, it seems as though some of the treatments were beneficial; but it must be understood that no conclusions are possible under the circumstances.

Average Weight of Individual Fruits.

In Table II. will be found the average weight per fruit for each treatment. These values were obtained by dividing the total weight of fruit picked from each plot by the total number of fruits. All fruit was graded into three sizes, and the weight and number of tomatoes in each grade recorded. Had the values in Table II. shown any striking differences according to treatment, a closer inspection of the grade figures would have been justified; the differential treatment has not, however, greatly affected the average weight per fruit.

2.—DISEASES.

It has been mentioned previously that the fertilizer trials were dislocated owing to the large number of plants which were rendered unproductive owing to disease. The question of disease will be discussed more fully in the following pages.

1.—Tomato Moth and Other Cutworms.

At the inception of these experiments, it was realized that an invasion of the tomato moth or other cutworms would seriously affect results, and consequently preventive measures were taken from early in the season. The loss from this source was very high in the Bendigo district generally last season, whilst the loss on all fruits picked from the plots was less than 1 per cent. The negligible percentage of grub-infested fruit on the experimental area was most striking when compared with surrounding areas, which sustained up to 50 per cent. loss.

Table II.

Average Weight of Individual Fruits.

(Total weight of produce, divided by total number of fruits.)

Treatment.	lb.	
Nitrogen (av. of three plots)	0·133	
Phosphorus (av. of three plots) ..	0·136	
Potash (av. of three plots)	0·141	
Phos. and Nit. (av. of three plots) ..	0·140	Standard Deviation single plot = 5·6%
Potash and Nit. (av. of three plots) ..	0·131	
Phos. and Potash (av. of three plots) ..	0·140	
Complete (av. of three plots)	0·137	
Complete Late Nit. (av. of three plots)	0·139	
Blood and Bone	0·136	
Lime	0·145	
Lime and Complete	0·137	
Stable Manure	0·138	
No treatment (av. of 22 plots) ..	0·137	

The following measures were taken to minimize loss through grubs and cutworms generally:—

1.—Staking.

All plants were staked, and the advantage of such practice in combating grubs cannot be stressed too greatly. In plantations where unstaked plants straggle over the ground, it is practically impossible for any campaign against grub to be effective. Under such conditions, cultivation, which is a big factor in killing larvae and pupae in the soil, is not so thoroughly carried out; in addition, any spraying or dusting of unstaked plants is difficult, and cannot be done satisfactorily.

On the other hand, staked plants are readily covered with spray or dust, and the soil more easily cultivated.

2.—Dusting.

The grub may be checked by spraying with arsenate of lead—1 lb. (paste form) in 20 gallons of water—or by dusting with arsenical preparations. On the plots, dusting was found to be more convenient than spraying, and a proprietary dust, containing 25 per cent. arsenate of lead, 8 per cent. copper carbonate, and 40 per cent. sulphur, was used on the young plants, commencing a week or so after transplanting to the field. After the fruit had started to form, a stronger dust, containing 50 per cent. arsenate of lead, and the same quantities of copper carbonate and sulphur, was used. The application of dust was carried out at intervals of about three weeks, according to the suitability of the weather. Under the staked conditions, very efficient coverage was found possible.

3.—Sanitation.

No grub-affected fruit was allowed to lie about the plantation; it was all gathered up and burnt.

Large losses are sustained by tomato-growers in seasons such as the last, when conditions are favorable for development of the grub pest. It is felt that losses could be cut to a minimum if growers would exercise reasonable care in gathering up grubby fruit, and practise staking, and spraying or dusting more generally.

The incidence of grub on the plots was so low that it had no appreciable effect in yields.

Apart from a slight visitation of green aphis towards the end of November, no other insects were apparent on the plantation. The aphids were followed by large numbers of "lady-birds," and disappeared without causing appreciable damage.

Fungus and Virus Diseases.

The following diseases made their appearance on the experimental field during the season:—

Fusarium Wilt (*Fusarium* spp.).
"Black Dot" Root disease (*Colletotrichum atramentarium*).
Spotted Wilt.
Mosaic (two types).
"Blue-top."

The first disease to make its appearance was *Spotted Wilt.* Plants were transferred to the field in the middle of October. About a week after planting out, a very severe frost resulted in a heavy loss, in spite of the plants being covered. The frost-bitten plants were replaced as soon as possible, and the new re-plants soon caught up with the plants that had survived. No sign of disease was noticeable until early in December, when Spotted Wilt made its appearance. A count of affected plants was made immediately, and thenceforth detailed surveys were made monthly, every plant of the area being inspected. Disease census figures for December, January, February, March, April, May, are available, and a summary will be quoted at the end of this section. The plants affected with Spotted Wilt usually occurred in bunches of two or three, and no treatment favoured it or affected its incidence in any way. The identification of Spotted Wilt became increasingly difficult in the hot months, owing to the masking of symptoms which occurs at high temperatures. Some plants were stunted by the disease and failed to produce a normal crop; others seemed to recover and produced normal-sized crops of inferior and mottled fruit. Spotted Wilt was identified definitely on 8.6 per cent. of plot plants (excluding buffer and guard row plants).

Mosaic Diseases.

Two forms of mosaic were recognized. One, usually known as ordinary mosaic, is distinguished by a pale mottling of the leaves, accompanied by some puckering and distortion. This form of mosaic comprised the greater portion of plants affected with mosaic. The other form of so-called mosaic which was noted was "Fern-leaf," characterized by the presence of filliform leaflets. This latter form is the result of virus infection as is ordinary mosaic, but seems to be produced by infection with cucumber virus I., whereas the ordinary tobacco or tomato virus is responsible for the ordinary mottling and puckering*. Whatever the exact relations of the diseases are, both result in stunted plants, which bear only stunted fruits or none at all. The percentage of plot plants in the fertilizer series which were affected by mosaic was 2.8 per cent. of the total. Roughly, 60 plants were therefore thrown out of action because of mosaic. Precautions were taken to prevent mechanical spread of the disease during picking, tying

* Mogendorff Phyto., 20.1.25, January, 1930.

Characteristic Plants affected with "Blue-top."

up, &c., but thrips and other vectors also responsible for the spread cannot be controlled satisfactorily. Mosaic first made its appearance in early December, and, like Spotted Wilt and Blue Top, occurred in localized patches.

"Blue-top."

With the possible exception of Spotted Wilt, this disease is one of the most troublesome to the tomato-grower. When it is considered that nearly 10 per cent. of the plants were affected with this disease, and that all these plants were totally unproductive or produced worthless fruit, it must be realized how important the disease is. "Blue-top," unlike Spotted Wilt and Mosaic, does not become apparent until February or March. The symptoms consist of general fasciation and malformation of the plant. The stems grow hard and woody, there is an immense proliferation of foliage, and the development of huge malformed "big-buds." In severe attacks, no fruit is produced; in others where infection occurs later, fruit may set, but it has a hard woody core, and will never ripen satisfactorily. Out of 2,100 plot plants used in the manurial trials (buffer rows excluded), 9.7 per cent. were affected with "Blue-top." The unequal prevalence of "Blue-top" from plot to plot was a big factor in the dislocation of results, as a plant so affected is almost totally unproductive.

Root Fungi.

Early in February, numerous plants showed a browning and drying up of the lower leaves. In some cases, these wilt symptoms travelled quickly up the plant and caused its ultimate death. Most of the plants, however, did not die, and showed no obvious ill-effects beyond the browning and withering of the lower leaves. Pathological examination of specimens showed the presence of the following root fungi:—

Colletotrichum atramentarium.
Fusarium spp.
Macrosporium spp.

Eventually, practically every plant showed browning of the leaves, and a certain amount of "root-rot." Those affected so severely as to be killed or rendered unproductive comprised 11.2 per cent. of plot plants. It is considered that *Colletotrichum* is very widespread in the tomato areas; on the plots, *Fusarium* was probably a secondary infection following on *Colletotrichum.*

Williams* has shown that *C. atramentarium* is commonly present in roots of apparently healthy tomato plants. It is probable that such is the case at Bendigo. Towards the end of the season, practically 100 per cent. of the plants showed a certain amount of browning of the lower leaves, together with root rot. It is undoubted that such infection affected yields, though not to a noticeable degree. From experience gained, it seems likely that infection occurs in the seed-bed.

Unidentified Disorders.

Approximately 8 per cent. of plot plants were non-productive or stunted owing to unknown causes. Absolute identification of the trouble was not possible, but in most cases the affected plants were weaklings from the beginning.

* 14th Annual Report, Cheshunt, E. S., 1928.

Discussion.

An analysis of disease observations is given in the following table:—

Plants affected with—

	Per cent.
Root Fungi	11.2
Spotted Wilt	8.6
Mosaic	2.8
"Blue-top"	9.7
Unidentified	7.7
Total	40.0

It is shown that 40 per cent. of the plants used for record purposes in the experiment were affected in some way or another. In some cases, plants with Spotted Wilt produced crops, but, generally speaking, those affected with "Blue-top" and "Mosaic" were totally unproductive. The three virus diseases, "Spotted Wilt," "Mosaic," and "Blue-top" account for 21 per cent., or approximately half the total number of diseased plants. No effective measures for control of these virus diseases are known at the present time.

From the summary, it is apparent why disease was instrumental in dislocating the manurial experiments. The enormous importance of these diseases to the tomato industry is also made evident, when it is considered that the experimental field was markedly healthier in appearance than most surrounding commercial areas. In spite of the prevalence of disease, the average yield over all manurial plots (including 21 no-fertilizer plots out of a total of 70 plots) was approximately 1,100 cases per acre—an extremely good average.

The only possible conclusion from the fertilizer experiments is that the biggest limiting factor to tomato production on the experimental area in season 1929-30 was disease. Disease so masked any effect which the fertilizers may have had, that it cannot be stated that any one fertilizer treatment is better than another.

3.—VARIETY TRIALS.

The southern portion of the field was devoted to the trial of twelve varieties, which were planted in plots of the same size as those used in the fertilizer trials. As before, the series was laid out in triplicate.

The varieties comprised nine early and mid-season strains, and three late varieties, listed below:—

1. Marglobe.
2. South Australian Dwarf Red.
3. Chalk's Early Jewell.
4. Orange Prolific.
5. Large Red A.
6. Large Red B.
7. Wilding's Prolific.
8. Pale Leaf.
9. Creeper Dwarf.
10. Norduke
11. Norton } Late varieties.
12. Gee's Late.

Manurial Treatment.

The variety plots received uniform fertilizer treatment, i.e., complete manure—superphosphate, 10 cwt. per acre, and sulphate of potash, 3 cwt. per acre—shortly after planting, and sulphate of ammania, 3 cwt. per acre at the end of January.

The soil is similar to that on which the fertilizer trials were situated.

Plants.

The list of varieties on trial differs slightly from the original, owing to the heavy frost in November destroying several varieties in the hardening beds. Nos. 1, 2, 6, 10, 12 were raised in hot-beds on Mr. Danson's property, whilst the remaining varieties were obtained from a reputable nurseryman in the district.

Table III.

Variety.	Plot.	No. of Abnormal Plants. (Total 30.)	Yield.	Average Yield.
			lb.	lb.
Marglobe..	71	21	282	228±12·9
	83	13	243	
	95	28	158	
South Australian Dwarf Red	72	8	301	230±12·9
	84	6	173*	
	96	4	217	
Chalk's Early Jewel ..	73	20	201	225±12·6
	85	19	211	
	97	14	263	
Orange Prolific	74	15	232	238±13·3
	86	12	270	
	98	19	212	
Large Red A	75	23	230	263±14·7
	87	12	275	
	99	12	285	
Large Red B	76	21	240	293±16·4
	88	14	270	
	100	16	369	
Wilding's Prolific	77	13	117*	212±11·9
	89	5	267	
	101	3	254	
Pale Leaf	78	9	295	302±16·9
	90	8	305	
	102	6	306	
Creeper Dwarf	79	4	237	231±12·9
	91	11	168	
	103	3	290	
Norduke	80	26	65	128±7·2
	92	15	203	
	104	28	116	
Norton	80	24	192	154±8·6
	93	24	144	
	105	29	127	
Gee's Late	82	6	278	249±13·9
	94	22	191	
	106	19	277	

* Plots near trees in highway reserve. Stunted plants.

Observations.

Picking, grading, &c., were carried out in exactly the same manner as on the fertilizer series. Similar records of disease were kept in order to ascertain whether there was any correlation between variety and resistance to the various diseases.

Yields.

Table III. shows the yields of all plots. In the third column, the number of diseased plants in each plot (total 30 plants) is recorded; in the fourth column, the total yield in pounds of each plot of each variety; and in the fifth column, the average yield of each variety, together with the probable error of each "variety mean" in pounds. The probable error of a single plot is 9.6 per cent.; and of an average of 3 plots, 5.6 per cent., calculated by the deviation from the mean method. The yield figures show that those varieties which are mostly grown in the district, that is, Large Red and Pale Leaf, have given significently higher yields than any of the others. The differences between Large Red A, Large Red B, and Pale Leaf, are not significant, but these three varieties have given significantly higher yields than those of any other varieties, with the possible exception of Orange Prolific and Gee's Late. The figures show very little difference in earliness; South Australian Dwarf Red matured a little more early fruit than did any other.

Three Fusarium Wilt-resistant varieties of American origin—Marglobe, Norduke, Norton—have not given satisfactory yields. Marglobe was the best of the three, but the two late ones, Norduke and Norton, yielded very low crops. These varieties produced an enormous quantity of vine, and fruit of excellent quality, nice shape and size, but they are definitely shy-bearing. Selections were made of particularly good plants; by selection it should be possible to improve the yield. These varieties have another drawback, in that they are particularly susceptible to Spotted Wilt. Further reference will be made to this. The fruit of these American varieties is round, smooth-skinned, and slightly subject to splitting. The other late variety, Gee's Late, was a medium bearer, and has fruit of similar type to Norduke and Norton.

Size of Fruit.

The average size of fruit is indicated by the following values, pounds per fruit, obtained by dividing the total weight of fruit picked by the total number of fruits picked:—

Table IV.

Variety.	lb. Fruit.	Variety.	lb. Fruit.
1. Marglobe	·143	7. Wilding's Prolific	·126
2. South Australian Dwarf Red	·131	8. Pale Leaf	·145
3. Chalk's Early Jewel	·137	9. Creeper Dwarf	·161
4. Orange Prolific	·126	10. Norduke	·127
5. Large Red A	·172	11. Norton	·138
6. Large Red B	·139	12. Gee's Late	·126

The largest fruit was picked from Large Red A, Creeper Dwarf, and Pale Leaf.

Diseases.

A census was taken about the middle of each month in order to obtain information regarding the incidence of disease. Much detailed information was obtained from the surveys on both fertilizer and variety trials. A summary in reference to varieties is given in Table V.

Table V.

The Incidence of Disease in Variety Plots.

Variety.	Total affected in 3 plots (90 plants).		Root Fungi.		Spotted Wilt.		Mosaic.		Blue Top.	
	No.	%	No.	%	No.	%	No.	%	No.	%
Marglobe	62	69	4	4	41	45	3	3	14	15
South Australian Dwarf Red	18	20	9	10	7	8	1	1	5	6
Chalk's Early Jewel	53	59	18	20	53	59	3	3	8	9
Orange Prolific	46	51	5	5	21	23	10	11	10	11
Large Red A	47	52	12	13	14	15	5	6	11	12
Large Red B	51	56	4	4	21	23	9	10	13	14
Wilding's Prolific	21	23	1	1	14	15	2	2	4	4
Pale Leaf	23	25	3	3	13	14	2	2	5	6
Creeper Dwarf	18	20	7	8	4	4	2	2	5	6
Norduke	69	76	..	..	60	66	..	..	9	10
Norton	77	85	2	2	64	71	..	..	11	12
Gee's Late	47	52	..	..	22	24	11	12	9	10

The outstanding feature is the marked susceptibility to Spotted Wilt of the four varieties, Marglobe, Chalk's, Early Jewel, Norton, and Norduke. There are no other outstanding differences between varieties. The American Fusarium-resistant varieties take Spotted Wilt very badly, and the high percentage of this disease in these plots accounts for the very low yield. Though these varieties are reputed to be shy bearers, it is certain that Spotted Wilt was partly responsible for their low yields in these trials. The total percentage of affected plants (all diseases) throughout the variety plots (excluding buffer rows) was 49 per cent. Towards the latter end of the season, all plants showed a browning of the bottom leaves, and evidence of root infection. Pathological examination revealed the presence of *Colletotrichum atramentarium*. In many cases, the roots also showed Fusarium; it seems probable that the Fusarium was in a sense saprophytic, following on after roots had been attacked by *C. atramentarium*. No variety showed definite resistance to any of the diseases mentioned. In regard to Spotted Wilt, it is of interest that the Council for Scientific and Industrial Research are at present endeavouring to breed a variety of tomato resistant to Spotted Wilt by crossing commercial varieties with the small "currant" tomato, on which Spotted Wilt has never been recorded. The only practicable means of tackling diseases such as "Spotted Wilt," "Blue-top," "Mosaic," at present seems to be by producing resistant varieties in such manner. Insect vectors are responsible for the spread of these diseases, but efficient control of thrips and aphids is almost an impossibility.

Root diseases are also difficult to control. Ordinary methods of disease control, spraying, &c., are useless as infection takes place through the roots.

SUMMARY.

1. *Fertilizer Trials.*—Owing to the prevalence of various diseases, no conclusions could be drawn from the fertilizer experiments.

2. *Diseases.*—The relative importance of various diseases—insect, fungus, and constitutional—has been discussed. Excellent control of tomato moth was achieved.

3. *Variety Trials.*—Large Red and Pale Leaf, both of which are very popular in the Bendigo valley, have given the highest yields. Three Fusarium-resistant varieties of American origin have given disappointing returns, chiefly owing to their susceptibility to Spotted Wilt.

CINCTURING CITRUS TREES.

1929-30 EXPERIMENTS.

By D. D. Brown, Citrus Supervisor, Swan Hill.

During 1929-30 the experiments to test whether the practice of cincturing citrus trees is of any use in increasing the yield from shy-bearing citrus trees were continued under the supervision of Mr. S. A. Cock, Citriculturist.

For the better understanding of the principles governing cincturing, perhaps a brief explanation as to why the practice is resorted to will make the results of the test more interesting. The theory is advanced that all plant food in liquid form is absorbed by the root hairs, and by a system of osmosis is diffused through the minute vessels in the wood to the various parts of the tree, ultimately reaching the leaves, where it is utilized. The leaves, with the assimilation of the carbon dioxide of the air, throw off oxygen, and, retaining the carbon, manufacture elaborated substances through the agency of the chlorophyll and sunlight. These elaborated substances are in turn taken down to the roots through the cortical layers, thus making the action between leaf and root reciprocal. Any injury, therefore, to the cortical layers deprives the roots of return food as long as the wound remains open, and such elaborated substances are instead utilized in the formation of fruit. This might explain why trees affected with any collar rot lesion bear abnormal crops for a year or two previous to death. All fruit in normal trees is the product of excess elaborated substances over root requirements. If the roots are obtaining more than their share, the trees grow very strongly at the expense of the crop.

EXPERIMENTS AT TESCO.

At Tresco the experiments were carried out in the grove of Mr. A. Milne, Tresco. The trees selected were tall and typically "off-type," and were well known in the district for their poor bearing qualities.

Cincturing was carried out with a strong sharp knife, a single cut being made on the trunk through the cambium into the wood. No bark was taken out as is done in the Zante currants. Fifteen well known light-bearing trees were selected. Four were treated on 22nd October, during blossoming; four companion trees were left untouched for check

purposes. A month later (on the 21st November), four other trees were cinctured, and three were left as checks. The results obtained at packing time, August, 1930, are set out hereunder:—

Trees—Cinctured 22nd October, 1929.

Tree.	Size of Fruits as packed into a Standard Bushel Case.									2".	Culls.	Total.
	75	84	96	112	126	140	168	180	225			
1	..	..	4	5	6	10	9	..	20	54	35	143
2	..	..	..	2	12	55	89	89	233	176	12	668
3	..	..	1	..	9	47	117	179	347	224	12	936
4	..	1	2	20	21	44	54	79	158	134	9	522
	..	1	7	27	48	156	269	347	758	588	68	2,269
(*Check*)												
5	..	..	2	4	16	37	29	33	40	25	2	188
6	3	5	16	44	59	62	44	4	18	22	9	286
7	18	26	30	49	34	50	78	22	1	9	6	323
8	..	..	..	3	5	9	25	45	109	80	7	283
	21	31	48	100	114	158	176	104	168	136	24	1,080

Trees—Cinctured 21st November.

Tree.	Size of Fruits as packed into a Standard Bushel Case.									2".	Culls.	Total.
	75	84	96	112	126	140	168	180	225			
9	45	20	24	51	78	30	100	18	14	5	14	399
10	..	..	1	7	34	87	119	213	328	295	13	1,097
11	..	2	16	50	168	172	154	118	126	73	19	898
12	4	13	32	57	74	107	58	68	49	57	15	534
	49	35	73	165	354	396	431	417	517	430	61	2,928
(*Check*)												
13	..	2	3	5	6	7	3	..	6	4	..	36
14	..	2	9	14	23	28	17	15	22	17	4	151
15	6	10	15	22	14	10	10	2	4	2	11	106
	6	14	27	41	43	45	30	17	32	23	15	293

It will be observed that the yield of every cinctured tree, except one, was heavier than that from any check tree. The exception (No. 1) had in no previous season set more than a dozen fruit; in all probability another cincturing this season will still further help its productivity. A noticeable feature of the experiment was the uniformity with which the fruit was borne on all branches of the cinctured tree, the branches on the exposed side carrying almost as much as those on

the sheltered side. It was noticed at blossoming time that the check trees flowered freely on both sides, but the blossoms on their exposed side did not yield a fair proportion of fruit.

The yields from the cinctured trees indicate that the temporary withholding of carbohydrates from the roots has given the trees the necessary strength to hold their crops against strong winds, which were very severe last spring.

It must not be supposed from the results of this test that the size or quality of fruit from "off-type" trees can be materially improved by cincturing, for such is not the case, nor must it be taken for granted that each and every tree will benefit by such treatment. Much harm may result in indiscriminate cincturing; therefore it is very necessary that the habits of the tree or trees should be studied before any cincturing is attempted.

In carrying out the experiments the active help and co-operation of the owner of the grove (Mr. A. Milne) was willingly given. Thanks are also due to the management of the Tresco Packing Shed for sizing the fruit of each tree separately so that a count of the various sized fruits could be easily made.

EXPERIMENTS AT WANGARATTA AND SHEPPARTON.

By W. A. Rolfe, Citrus Supervisor, Shepparton.

Wangaratta.

Cincturing tests at Wangaratta, two years ago, on shy-bearing navel orange trees, indicated that the operation might lead to increased yields if carried out during the petal-falling stage. Experiments were therefore continued last season in the grove of Messrs. Larkings and Woolcox, Wangaratta.

On 23rd October four trees were cinctured, a simple cut being made around the trunk of each tree through the cambium layer into the wood. At the time these trees were cinctured they were at the bud stage.

On 13th November another four trees were cinctured in the same manner; the trees were at this time just dropping their petals.

The dry conditions during last summer, in the Wangaratta district, were severe on citrus trees. The trees in the row in which the check trees for this test were situated dropped practically all their fruits and nearly all their foliage. The counts in the test were made in late September, 1930; they were as follows:—

Row 4.—Cinctured in Bud Stage.

Trees 1 to 4—Fruits—136, 166, 336, 393=Total 1,031.

Row 5.—Check.

Trees 1 to 4—Fruits—139, 283, 176, 333=Total 931.

Row 6.—Cinctured when Petals were Falling.

Trees 1 to 4—Fruits—396, 493, 439, 373=Total 1,701.

In the latter experiment the fruit on the check trees was not counted. The trees had suffered so severely from the dry conditions in the part of the grove in which they were growing, that no fair comparison could be made.

The twelve trees whose fruit was counted (four trees cinctured at the bud stage, four check trees, and four cinctured when the petals were falling) had all suffered about equally.

Shepparton.

On the 25th October, 1929, four of a block of vigorous-growing navel orange trees in the grove of Mr. W. Mulcony were cinctured in a similar manner to those experimented with at Wangaratta (one single cut around the trunk). At the time of this cincturing the trees were at the bud stage. Three weeks later, on the 15th November, at the time when the petals were falling, four more trees were cinctured.

In September, 1930, the fruit from these trees and companion trees that had been set aside as checks was counted. The counts were:—

Row 2.—Cinctured in Bud Stage.

Trees 2 to 5—584, 808, 522, 867—Total 2,781.

Row 3.—Check.

Trees 2 to 5—488, 762, 774, 670—Total 2,694.

Row 4.—Cinctured when Petals were Falling.

Trees 2 to 5—716, 667, 830, 809— Total 3,022.

Row 5.—Check.

Trees 2 to 5—497, 419, 560, 730—Total 2,206.

The results show that shy-bearing trees are somewhat benefited by the single-cut cincture made when most of the petals have fallen.

Those cinctured in the bud stage showed a slight increase, but such an increase might possibly be due to variation in the size of the trees, though in selecting trees for the experiment those with as little variation as possible were chosen.

SULPHURING CITRUS TREES.

EXPERIMENTS AT SHEPPARTON, 1929-30.

By W. A. Rolfe, Citrus Supervisor, Shepparton.

In order to test the result of sulphuring citrus trees during the blossoming stage for the purpose of increasing the crop, an experiment was carried out at Shepparton under instructions from the Citriculturist, Mr. S. A. Cock.

Mr. W. Mulcony, of Shepparton East, kindly made available twenty trees for the purpose of the experiment; a further twenty were allotted as checks. These trees were over fourteen years old, having been planted in 1915.

On the 7th November, 1929, the twenty trees were sulphured while at the full bloom stage. On the 22nd November ten of the trees were re-sulphured when the petals were falling.

The sulphur was applied with a sulphur bellows, and the application was proceeded with until the trees showed a deposit of sulphur everywhere on the foliage and bloom. The quantity of sulphur used was about 2 lb. per tree.

During September, 1930, the fruit from the sulphured trees and controls was harvested and counted. Whilst picking was in progress in the other portion of the grove, some of the pickers, noticing a few odd Thompson's navels amongst the experimental trees, inadvertently picked them, and the records of the fruits picked cannot be given. This made it necessary to reduce the size of the experiment and rely only on those trees from which no fruit had been removed.

The results of the counts were as follow:—

Yield from Trees Sulphured while at Full-bloom Stage.

Fruit picked.

Row 2—Sulphured—Trees 16 to 19—483, 369, 366, 430—Total 1,648

Row 3—Check—Trees 16 to 19—324, 596, 377, 485—Total 1,782.

Yield from Trees Sulphured Twice—Once when in Full Bloom, and Again when the Petals had Practically all Fallen.

Fruit picked.

Row 2—Sulphured—Trees 1 to 5—140, 670, 703, 570, 743—Total 2,826

Row 3—Check—Trees 1 to 5—145, 731, 824, 469, 470—Total 2,639

Only one tree of those given one sulphuring showed an increase over its check.

Three of those given two sulphurings did not yield as many as their checks, though the total from five trees given two applications was about 200 more than the total from the checks.

As a result of the experiment it is considered that the practice of sulphuring on a commercial scale would not be justified, as the cost of the work and material is not compensated for by the increase in crop.

PRUNE DRYING.

(Continued from page 687.)

By F. de Castella, Horticultural Division.

PRUNE PROCESSING IN FRANCE.

In the foregoing pages several references have been made to the unquestionable superiority of French prunes. The method followed in the Agen district, where the best French prunes are grown, therefore presents special interest.

Though the high quality of this prune may be in part due to climate, soil, and the sort of plum, there is little doubt that the drying method also exerts an influence of very real importance. It differs radically in several directions from those followed in other countries. Except that heating is artificial, it is not at all similar to the dehydrator methods used in America. In the first place, "ovens" of small size take the place of the large continuous dehydrators of tunnel type, and, in the second, the drying operation is essentially discontinuous. Instead of moving forward through the tunnel, at constant or increasing temperature, as is the American practice, French prunes undergo three separate heatings, between each of which they are completely cooled in the open air. This intermittent heating, though far less economical in fuel consumption, seems to be amply justified by the high quality attained. This is, indeed, held to depend largely on changes in temperature and in air moisture during the drying process. The "cooking" of the prune—a really more apt term than dehydration—is an art that demands skill and long practice. The delicate manipulations it entails would seem to appertain rather to the functions of a skilled chef in his kitchen than to the working of an industrial process. Agen prunes are literally "stewed in their own steam," at least during certain stages of drying, as explained below.

The information that follows has been compiled from an interesting series of articles by Professor Rabaté,* describing a working trial of prune ovens or *étuves*, as they are called in French, held at Villeneuve-sur-Lot, in the Agen district, in 1910. It is in this district that French export prunes are grown; those of Tours and Brignoles (see p. 503) are mainly consumed in France. Though often known to the trade as Bordeaux prunes, from the port of shipment, they are grown some 80 miles south-east of that town. Agen, the capital of the Department of Lot-et-Garonne, is a town of some 25,000 inhabitants. The district proved itself eminently suited for prune production, which became its leading industry; another example of that specialization so common in French agriculture and horticulture.

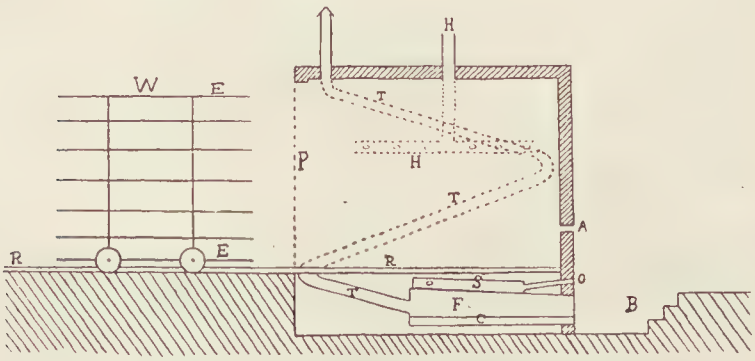
The production of Agen prunes is still an important industry, though less so than half a century ago, owing partly to a mysterious dying off of many plum trees (see p. 501), and partly to Californian competition in the cheaper grades. From 1872 to 1882, the average annual

* *Progrès Agricole*, 23rd April, 7th May, and 4th June, 1911. *Etudes Pratiques sur le Séchage des Fruits*; E. Rabaté, Professeur Départementale d'Agriculture de Lot-et-Garonne.

crop was worth two million sterling to the district. By 1911, this average was reduced to about a million a year, and it has since further declined (see p. 500). The industry is conducted mainly by small growers, who dry their own fruit. Though some installations on an industrial scale exist, home drying is the general rule. It certainly makes for quality, under the conditions prevailing in the district. Processing is conducted by men skilled in the work, with quality as the main objective; a healthy rivalry stimulates each to endeavour to surpass his neighbour, and there is a definite premium to quality in the higher price obtainable from the large packing houses. These prunes are a "de luxe" product. Quality is the very essence of the industry, which has, thanks to it, been able to survive severe competition.

Home drying also suits the prune d'Ente; its thin skin is not adapted for transport to a distance.

Drying is conducted in ovens or étuves of very limited dimensions. There are various makes, but they all conform to a fairly even type



Diagramatic Section of Prune Oven. (After Rabaté.)

B, recess for fireman; A, cold air entrance; O, entrance for air to be heated; S, heating chamber; F, fire-box; C, ash-pan; T, T, T, smoke flues; H, H, pipes for removal of moist air; P, door; R, R, rails; W, truck; E, E, shelves for carrying drying trays. [Scale about 6 feet to 1 inch.

and size, for it has long been recognized that a small étuve is essential for high quality. A large prune-grower employs quite a number of these small drying chambers, working side by side, rather than one or more of greater capacity.

Construction of the Etuves.

Not only are the drying chambers small, but they are obtainable at a moderate price. Exclusive of brick or stonework, the pre-war price was usually between 350 and 400 francs (£14 to £16).

They consist essentially of a chamber constructed of masonry or brick, the latter permitting the use of hollow walls, which reduce loss of heat. The usual dimensions are 8 to 9 feet in depth by 4 ft. 10 in. to 5 ft. 3 in. in width, and a height just sufficient to conveniently house the truck, or a little over 7 feet. This chamber is closed at one end by a door, which opens to admit the truck, loaded with the trays of prunes, which runs on rails. Below the rails, and immediately under

the chamber, is the firebox, either of wrought or preferably of cast-iron. Wood fuel is used; the products of combustion pass through horizontal flues under the rails, and thence by diagonal ones along the walls of the chamber.

The height of the truck is usually about 7 feet, anything higher being inconvenient to handle. The height of the chamber is just sufficient to admit the truck, which should nearly fill it. Fig. 11 will give an idea of the arrangement of the different parts.

The trucks are five to ten-storied, and each story or shelf holds from three to eight trays, which are made either with small meshed wire-netting or of wooden laths. Evenness of heating is essential. As the temperatures are higher near the firebox, and also at the top of the chamber, where the hot air accumulates, the shelves of the truck are wider apart at midheight, to permit the circulation of a greater volume of hot air. The capacity of such a chamber varies from 5½ to 11 cwt. of fresh prunes, and the drying time occupies from 19 to 27 hours, inclusive of the time between heatings, during which the fruit is cooled. Provision is made for the entry of fresh air (hot or cold) and for the evacuation of moist air; great importance is attached to the proper regulation of air entry and exit, for which ingenious arrangements have been devised, evenly distributing the ingoing air and evacuating steam, &c., so as to maintain even heating throughout.

It is most important, during the course of drying, to be able to vary the degree of humidity in the interior of the étuve. It is thus necessary to place, at suitable points, openings, the aperture of which can be regulated. The exit of moist air is always checked—the orifices are narrow, and at certain times they are completely closed. The prune then cooks (*se confit*) in an atmosphere charged with steam. Many practical driers hold that this preparation in a moist hot atmosphere contributes to give to Agen prunes their colour, their gloss, and their so delicate aroma.

A window, suitably situated in the door, enables the attendant to form an idea of the degree of air humidity, which is indicated by the amount of condensation on the glass pane. It also permits the reading of a thermometer situated within the chamber.

Conduct of the Work.

Details of construction vary greatly with the make of the étuve. These in their turn influence the conduct of the work. There are, nevertheless, certain principles that apply generally throughout the district.

In the first place there is the absence of preliminary treatment before drying. Agen prunes are neither dipped in lye nor are they pricked. They go immediately into the étuve, where they undergo three separate heatings, between each of which the truck, laden with its trays, is wheeled into the open air, and the fruit is allowed to cool. Though temperatures and times vary with the different makes, they are usually within the following limits:—

First heating (wilting) sometimes commences with the chamber very hot, but this is immediately brought down by the cold fruit. It usually lasts from four to six hours at moderate temperatures (113 deg. to 140 deg. F.), to avoid dripping. On its completion the fruit is cooled in the open air.

Second heating (seconding) lasts from four to six hours with temperatures of from 140 deg to 167 deg. F.; on its completion the fruit is again cooled.

Third heating (finishing) lasts from four to six hours with maximum temperatures of from 158 deg. to 167 deg. F. During this stage the exit vents are closed for an hour or so to promote high atmospheric humidity; this takes place sometimes more than half way through the stage, and sometimes earlier. When sufficiently dry, the prunes are finally rapidly cooled in the open air.

The following extracts will give some idea of the way in which the practical working varies from one make of étuve to another.

The étuves manufactured by Boudie and Pejac were respectively awarded first and second prizes at the Villeneuve trial in 1910. Though there is agreement in general principles, in matters of detail there is considerable variation.

Drying with Boudie's Etuve.

Temperatures were checked with a thermometer in a recess in the door 4 ft. 2 in. above the rails, protected from the outside air by a pane of glass.

Two principles were observed throughout—

1st. Temperature not allowed to fall, once equilibrium is established, after the placing of the prunes in the drying chamber.

2nd. Moisture not allowed to condense on the thermometer pane; as soon as condensation is observed, vents are opened to evacuate the steam.

The work comprises three phases—Wilting, seconding, and finishing.

Wilting.—The empty oven is first heated to 212 deg. F. with all vents closed. The truck, loaded with 610 lb. of fresh prunes, is wheeled in. The temperature steadily falls, reaching 140 deg. in an hour's time. Air vents are gradually opened to permit the escape of moist air. Two hours after the entry of the fruit the door is slightly opened to make sure that swelling is not excessive. If dripping seems likely, the truck is wheeled out for five minutes to toughen the skin. It is wheeled in again, the thermometer falling to 129 deg.–133 deg. The fruit can then be left for six hours without withdrawal or inspection. A moderate fire is kept up, so that the temperature does not exceed 131 deg. After six hours the truck is taken out and cooled for an hour.

Seconding. Whilst the truck is outside, the temperature of the chamber is raised to 176 deg.–194 deg., and the truck is wheeled in again. There will be no dripping if vents are opened to evacuate the abundant steam. The fruit is left thus for a further six hours at 140 deg.–149 deg., rising during the sixth hour to 158 deg. During this stage the door is opened once or twice to see if a good brown colour and gloss are being developed. If gloss is lacking, temperature is too low and the fire must be forced. At the end of six hours the prunes commence to wrinkle; the truck is again wheeled out for an hour to cool.

Finishing.—Whilst the truck is outside, air vents are closed and the temperature raised to 212 deg. The truck is wheeled in, temperature falling to 140 deg., exit vents are kept shut for about an hour, until the pane near the thermometer shows slight condensation. The vents are then opened to evacuate steam. Heating is continued for six hours, gradually reaching 167 deg. towards the fifth hour. Air vents are kept open during the latter part of this stage, to prevent softening of the prune by moisture, which would cause loss of time and reduce quality. Towards the sixth hour the door is slightly opened, and the fruit is sometimes left in for an extra hour to completely dry.

The following additional particulars concerning Boudie's étuve are of interest:—The price (pre-war), exclusive of brickwork, was

£13. During the trial it was charged twice with fresh fruit, the weight of the two batches totalling 1,219 lb. This dried out to 437 lb., or 35.7 per cent. of the fresh weight. In other words, a drying ratio of 2.8 to 1, which was below the average, the season having been a wet one. At a previous trial, held in 1879, drying ratios of as high as 46 per cent., or 2.17 to 1, were recorded.

The wood burnt weighed 1,054 lb., or 241 lb. for each 100 lb. of finished prunes, and 135 lb. for 100 lb. of water evaporated. The wet season was again at fault, the wood being of poor heating power; at a previous test the best machine burnt 100 lb. wood per 100 lb. of water evaporated.

The two batches of prunes took 49 hours 37 minutes to dry; or, if working continuouly, at the rate of 211 lb. of finished prunes in 24 hours.

Drying with Pejac's Etuve.

As is usual in the district, this also comprises three heatings. Temperatures are indicated by a thermometer in the door, 2 ft. 8 in. above the rails.

First Heating.—The truck, laden with 8 cwt of fresh prunes, is wheeled into the chamber. The fire is started, and it is heated to 113 deg.–122 deg., and even to 131 deg. F. if the prunes are dry or have been in the sun. After half-an-hour's heating, vents are somewhat opened according to the rate of steam liberation. Heating continues for four or five hours, with slightly increasing temperature. Towards the fourth hour the fruit is inspected; if there is any dripping, the truck is wheeled out. Towards the close of wilting the colour should attain a golden red. The prunes are then cooled for at least an hour, or, better still, for a day, as complete cooling permits the retention of more weight in the fruit after drying.

Second Heating.—The temperature of the chamber is raised to 131 deg., and the truck wheeled in. The thermometer falls to 104 deg.; it is progressively raised to 158 deg.–167 deg., and air vents are opened sufficiently to evacuate steam.

The second heating lasts about four hours. The prunes are then taken out and cooled for at least an hour. The colder the fruit, the more rapidly can the next heating be conducted.

Third Heating.——Temperature is raised to 158 deg., and the cold prunes are wheeled in. Cold-air entry and steam-exit vents are partly opened. This heating lasts about four hours. Towards the third hour, when the prune is well wrinkled, the fire is forced, and progressively, according to the amount of condensation, entry and exit vents are closed.

Towards the end of drying a little condensation is permitted, to give gloss (*du brilliant*) to the prune.

The trays are then taken into the open air, but are not stacked, and the fruit is cooled.

In a general way, towards the end of each heating, the fire is forced somewhat to carry off steam, toughen the skin, preserve weight, and acquire heat for the next stage.

Further particulars concerning the Péjac étuve are as follow:—Price (pre-war), exclusive of brickwork, £15 12s. The truck is of peculiar construction, being rotary, the whole pivoting on a vertical axis. This facilitates inspection and equalizes heating. The trays are approximately triangular, to fit the circular shelves.

During the trial two batches were processed, totalling 915 lb. fresh prunes, which dried to 321 lb., or 35 per cent. of the fresh weight—a drying ratio of 2.85 to 1. Wood burnt weighed nearly 9 cwt., or 310 lb. for each 100 lb. of dried prunes, and 168 lb. for each 100 lb. of water evaporated. The drying of the two batches occupied 49½ hours, or at the rate of 154 lb. in 24 hours.

Such is a necessarily brief account of the Agen étuve, which, as we have seen (p. 504), was gradually evolved to replace the old-time processing in the baker's oven. These appliances have been in general use for over 70 years. Though improvements have been made to fire-box, flues, and control of air entry and steam evacuation, there have been no radical changes in the process.

It is true that the continuous system, similar to the American tunnel, has also been tried in the Agen district, where a distinction is made between étuves, as described above, and evaporators, in which, as in the tunnel, the prunes move continuously forward in contrary sense to the hot air. Evaporators have their partisans, who claim for them fuel economy and the retention of more of the flavour of the fresh fruit. The last seems a doubtful advantage, since high-grade prunes are conspicuous for the way in which their taste differs from the fresh plum. Nevertheless, the old-fashioned étuve maintains its hold on popular favour, desipte its wasteful use of fuel and labour. As Rabaté points out—

> The yield in marketable prunes has been considered the main point in connexion with the working of étuves. Avoidance of overheating, which would cause dripping, and the attainment of a degree of dryness, sufficient to assure good keeping, constitute the most delicate part of the drying problem; many prune-growers, indeed, consider the expenditure of fuel and labour to be of secondary importance.

The Agen prune is a "de luxe" product, and its price renders this attitude possible. In Australia, few customers seem disposed to pay the higher price for a quality article. The methods by which such is processed are, nevertheless, worthy of consideration. It is possible that dehydrators might be so modified as to provide for that special "cooking," at the right stage of the process, which is so marked a feature of the Agen method.

CARE OF MILK AND CREAM.

There is altogether too much butter coming forward for export below choicest in quality, although a gradual improvement is being made in this respect. It is easily within the reach of each and every dairyman to supply cream which will be graded as "choicest." Quite a lot of cream is not up to this standard, and has to be paid for at a rate which means a loss of ½d. on each 1 lb. of butter-fat. Thus, on every full can of cream, 1s. 8d. is lost, and as most dairymen average a can per day, the loss amounts to 11s. 8d. per week. The position of the dairymen who supply second-grade cream is infinitely worse, as then the loss represents 3d. for every 1 lb. of butter-fat; this amounts to 10s. per can; thus, where the production is a can per day, the weekly loss is £3 10s.—[Extract from a "wireless" talk by Mr. R. Crowe, Exports Superintendent.]

STANDARD HERD RECORDS.

For Quarter ended 30th September, 1930.

In the following is set out the records of all cows which completed a lactation during the quarter. The number is 569, of which 400 qualify for the certificate.

The amount of butter fat required for qualification varies according to the age of the animal (up to 5 years at time of calving), the standards being as follow :—

Junior 2 year old (under 2½ years at time of calving)	200 lb. butter fat.
Senior 2 year old (between 2½ and 3 years at time of calving)	225 lb. butter fat.
Junior 3 year old (between 3 and 3½ years at time of calving)	250 lb. butter fat.
Senior 3 year old (between 3½ and 4 years at time of calving)	275 lb. butter fat.
Junior 4 year old (between 4 and 4½ years at time of calving)	300 lb. butter fat.
Senior 4 year old (between 4½ and 5 years at time of calving)	325 lb. butter fat.
Mature cow 5 years and over	350 lb. butter fat.

Owner.	Records Completed.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lb.
									lb.	lb.		lb.	lb.	
N. B. Alston, Romsey	4	3	Jersey ..	Rosyth Tulip ..	Mature	21083	29.9.29	273	15	8,241	5·45	449·51	350	440
				Tulip 4th of Bonshaw ..	Mature	7103	23.10.29	273	15½	7,056	4·68	330·33	350	372
				Rosyth Lady Rose	Jr. 3 yrs.	26378	9.11.29	273	6	6,363	5·90	375·30	250	305
				Aberdour Romany Rose ..	Jr. 4 yrs.	26376	13.12.29	273	11	6,728	6·13	412·41	300	391
J. Anderson, jr., Lyndhurst	5	2	Jersey ..	Canary 16th of Kingsvale ..	Mature	14115	19.10.29	273	6	4,983	5·86	292·04	350	240, 292
				Linda 57th of Kingsvale ..	Mature	12856	23.10.29	273	5½	5,700	5·14	293·24	350	288, 424, 341, 349
				Linda 69th of Kingsvale ..	Jr. 4 yrs.	21087	2.11.29	273	7½	6,287	5·02	315·31	300	274, 293
				Kingsvale Brunette 23rd ..	Jr. 3 yrs.	24205	12.12.29	273	13	4,704	5.68	267.21	250	262
				Rosella 11th of Kingsvale ..	Mature	16591	25.12.29	273	14½	5,748	5·77	331·55	350	336, 318, 455
Archibald and Sons, Sale	3	2	Jersey ..	Glenallan Tulip	Sr. 2 yrs.	24213	5.10.29	273	16	5,763	5·93	341·70	225	
				Glenallan Twinkle	Sr. 2 yrs.	24214	10.10.29	273	17	6,988	4·45	311·29	225	
				Amelia's Lady 3rd of Waterloo Farm	Mature	14933	10.12.29	273	15½	6,120	5·18	316·91	350	

STANDARD HERD RECORDS—*continued.*

Owner.	Records Completed.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lb.
									lb.	lb.		lb.	lb.	
L. R. Archibald, Tongala	1	1	Jersey ..	Maiwand Rose	Jr. 2 yrs.	25881	1.7.27	273	18½	6,641	4·73	314·01	200	
W. H. Atherton, Murraydale	7	6	Jersey ..	Mythic of Beverley ..	Mature	18608	30.9.29	273	19½	8,733	5·97	521·09	350	330, 361, 301
				Beverley Cream Lassie ..	Jr. 2 yrs.	25730	27.10.29	273	14½	4,275	5·13	219·44	200	
				Beverley Rosella	Jr. 2 yrs.	25734	27.10.29	273	15	4,619	5·44	251·35	200	
				Tiny of Meadowvale ..	Mature	9409	27.10.29	273	14	7,445	5·72	425·61	350	374, 361, 298, 461, 486, 468, 379, 351
				Beverley Empress 2nd ..	Jr. 2 yrs.	25731	3.11.29	273	12½	5,084	5·04	256·48	200	
				Beverley Tit Willow ..	Jr. 2 yrs.	25735	12.11.29	273	14½	4,979	5·26	261·87	200	
				Wattle Bloom of Beverley ..	Mature	18611	25.11.29	273	6	7,031	4·68	329·02	350	329, 343, 350
W. K. Atkinson, Swan Hill	12	8	Milking Shorthorn	Willow Park Queenie 15th ..	Sr. 2 yrs.	Vol. 1	1.10.29	273	23½	9,361	3·87	362·45	225	
				Willow Park Queenie 18th ..	Jr. 2 yrs.	Vol. 1	31.10.29	273	21½	7,475	3·99	298·19	200	
				Willow Park Countess 2nd ..	Mature	Vol. 1	10.11.29	273	12½	7,568	4·25	321·51	350	257, 300, 265
				Gaylass of Willow Park ..	Mature	13695	18.11.29	273	12	8,315	3·94	327·23	350	353, 346, 384
				Butterfly of Willow Park ..	Mature	13201	20.11.29	273	21	9,236	4·40	405·96	350	301, 356
				Peggy of Willow Park ..	Mature	14336	20.11.29	273	10	7,746	3·92	303·80	350	276, 244, 239, 273
				Moss Rose 2nd of Willow Park	Sr. 3 yrs.	Vol. 1	23.11.29	273	20½	8,192	3·77	308·70	275	242
				Damsel of Willow Park ..	Mature	13408	3.12.29	273	20	11,703	4·19	490·41	350	338, 409, 452, 380, 439, 538
				Countess of Willow Park ..	Mature	9250	11.12.29	273	18½	8,426	4·09	344·21	350	264, 330, 382, 359, 342, 382, 406, 358, 393
				Willow Park Comet 2nd ..	Jr. 4 yrs.	Vol. 1	12.12.29	273	21½	9,732	3·73	363·07	300	239, 311
				Willow Park Dainty 2nd ..	Sr. 3 yrs.	Vol. 1	18.12.29	273	26	9,102	3·77	343·60	275	258, 342
				Willow Park Dulcie 2nd ..	Jr. 4 yrs.	Vol. 1	26.12.29	273	19	11,127	3·73	415·38	300	320, 362
F. Austin, Lara	1	1	Jersey ..	Mercedes' Belle of Avalon ..	Mature	12863	4.12.29	210*	34	8,265	5·37	444·14	350	291, 335, 422, 436, 495, 493

* Herd withdrawn.

Standard Herd Records—*continued.*

Owner.	Records completed.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lb.
									lb.	lb.		lb.	lb.	
W. H. Axford, Camperdown	10	10	Jersey ..	Leura May 3rd	Jr. 2 yrs.	25241	1.10.29	273	15	6,240	5·35	334·37	200	
				Leura Piccaninny 3rd ..	Jr. 2 yrs.	25246	3.10.29	273	17	5,522	5·38	297·03	200	
				Leura Patricia 4th	Jr. 2 yrs.	25244	4.10.29	273	16½	4,967	5·60	278·30	200	
				Leura Beauty 3rd	Jr. 3 yrs.	24230	9.10.29	273	17	6,737	5·60	377·27	250	323
				Beauty of Leura	Sr. 3 yrs.	18619	10.10.29	273	20½	8,565	4·75	406·87	275	396
				Leura Elaine 2nd	Jr. 3 yrs.	24233	10.10.29	273	16½	5,942	6·45	383·24	250	319
				Leura Patricia 3rd	Jr. 3 yrs.	24238	23.10.29	273	N.O.C.	7,292	4·87	355·42	250	323
				Leura Lady Elector 3rd ..	Jr. 3 yrs.	24236	29.10.29	273	N.O.C.	6,599	5·79	381·86	250	333
				Leura Patricia 5th	Jr. 2 yrs.	25245	27.12.29	210*	15	4,185	5·87	245·75	200	
A. P. Bailey, Yannathan	1	1	Jersey ..	Wompini Rosalie	Jr. 3 yrs.	24604	3.10.29	273	11	5,462	5·77	315·19	250	327
Ballarat Orphanage, Ballarat	4	2	Jersey ..	Dunallister Peeree's Quick Sand	Mature	9633	1.10.29	273	11	6,182	5·03	311·19	350	304, 331
				Vanilla's Melba of Tavistock	Mature	11323	7.10.29	240	17	9,145	4·90	447·79	350	484
				Tavistock Audrey's Princess	Jr. 3 yrs.	Vol. 17	20.10.29	273	11½	5,405	5·99	323·82	250	
				Dunallister Starbright Duke's Mirthmaker 2nd	Sr. 2 yrs.	24248	30.10.29	273	4	2,945	6·52	192·70	225	242
G. H. Belfield, Coleraine	4	4	Jersey ..	Wootong Vale Golden Beauty	Jr. 4 yrs.	21115	23.10.29	255	N.O.C.	9,068	4·94	447·92	300	472
				Wootong Vale Marigold ..	Jr. 3 yrs.	25758	11.11.29	273	18	7,055	4·87	343·89	250	330
				Wootong Vale Vanilla's Princess	Jr. 2 yrs.	25760	27.11.29	273	16	5,915	5·08	300·54	200	
				Wootong Vale Sovereign Queen	Jr. 4 yrs.	21117	3.12.29	273	14	7,626	5·69	434·0	300	345
F. Bidgood, Staghorn Flat	3	3	Jersey ..	Staghorn Master's Belle ..	Jr. 2 yrs.	25762	30.9.29	273	20½	6,933	6·14	425·46	200	
				Sweet Lotus of Staghorn ..	Mature	16615	5.10.29	273	16½	7,002	5·52	386·17	350	256, 304
				Staghorn Una	Mature	18447	20.10.29	273	20½	8,535	5·47	466·69	350	447

* Herd withdrawn.

STANDARD HERD RECORDS—*continued.*

Owner.	Records Completed.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lb.
									lb.	lb.		lb.	lb.	
Mrs. A. J. Black, Noorat	3	2	Jersey ..	Noorat Sunshine	Mature	16219	24.10.29	273	16½	9,474	5·34	505·65	350	265, 240, 415, 514
				Ettie 8th of Banyule ..	Mature	14182	18.11.29	273	14	7,347	6·10	448·12	350	386, 476, 438
				Noorat Gaiety	Sr. 2 yrs.	25266	21.11.29	273	8	4,037	5·08	205·09	225	
I. S. Black, Home Farm, Noorat	2	2	Ayrshire	Peggy of Ben Kell	Mature	11349	12.10.29	273	17	8,933	4·43	396·01	350	297, 364, 283, 481
				Oakbank Barbara	Sr. 2 yrs.	18705	25.10.29	273	14	5,642	4·15	234·12	225	
I. S. Black, Share Farm, Noorat	2	..	Ayrshire	Sunnyside Choicest ..	Sr. 4 yrs.	16736	4.10.29	273	4½	4,052	4·29	173·74	325	
				Willow of Sunnyside ..	Mature	14312	11.11.29	240	4	3,930	4·94	194·03	350	
S. Bolton, Mannerin	1	1	Jersey ..	Glenmavis Surprise ..	Jr. 2 yrs.	24270	22.12.29	273	25½	7,205	4·92	354·30	200	234
A. A. Broad, Sutton Grange	5	5	Jersey ..	Daffodil of Grangelea ..	Sr. 4 yrs.	18648	6.10.29	273	23	9,519	5·25	500·06	325	433, 500
				Grangelea Daisy 6th ..	Jr. 2 yrs.	..	18.10.29	273	14½	4,600	4·75	218·64	200	
				Grangelea Primrose ..	Sr. 3 yrs.	23007	31.10.29	273	24½	8,337	5·50	458·95	275	370, 462
				Grangelea Golden	Jr. 2 yrs.	..	1.12.29	273	19½	6,194	5·41	335·35	200	
				Grangelea Daphne	Jr. 2 yrs.	..	4.12.29	273	16½	5,143	5·10	262·29	200	
Brooks Bros., Rochester	1	1	Jersey ..	Grangelea Rosa 2nd ..	Sr 3 yrs.	24275	9.10.29	273	10	5,187	5·37	278·41	275	
Cameron and Sons, Valencia Creek	4	4	Jersey ..	Studleigh Duchess 3rd ..	Sr. 2 yrs.	25289	30.9.29	273	17½	6,696	6·48	434·18	225	314
				Studleigh Dianthus 3rd ..	Sr. 2 yrs.	25287	7.10.29	273	16½	6,588	5·77	379·82	225	315
				Studleigh Dianthus ..	Sr. 4 yrs.	21159	3.12.29	273	20½	7,784	5·80	451·22	325	347, 437, 474
				Dianthus of Springhurst ..	Mature	12215	25.12.29	273	20	8,012	6·15	492·45	350	274, 393, 380, 439, 456, 458

Standard Herd Records—*continued.*

Owner.	Records completed.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lb.
									lb.	lb.		lb.	lb.	
J. Canobio, Bena	4	..	Ayrshire	Glen Erin Adella	Sr. 3 yrs.	16193	29.9.29	240	4	5,970	4·13	246·51	275	247
				Glen Erin Ada	Sr. 2 yrs.	18095	12.10.29	273	4½	4,843	4·21	203·87	225	
				Glen Erin Dawn	Jr. 3 yrs.	16194	20.10.29	240	4	5,535	4·38	242·20	250	259
				Wave of Glen Erin ..	Mature	10888	31.10.29	273	18	8,720	3·86	336·88	350	286
W. C. Cayley, Werribee	2	..	Ayrshire	Riversdale Madge	Sr. 2 yrs.	18880	3.11.29	180	4	2,700	4·26	115·00	225	280
				Maisie of Sunnyside ..	Mature	12991	23.11.29	210	4	5,595	4·43	247·99	350	329
J. E. Chadderton, Hamilton	1	1	Jersey ..	Duchess of Glen Leigh ..	Mature	15462	27.10.29	273	15½	6,642	6·42	426·21	350	410, 346, 489
E. L. Chester, Mt. Scobie	2	2	Jersey ..	Aveley Hibiscus 3rd ..	Jr. 2 yrs.	25797	5.10.29	273	9½	4,095	4·92	201·53	200	
				Holmlea Myrtle	Jr. 2 yrs.	..	16.12.29	273	13¾	4,295	5·46	234·47	200	
P. J. Chirnside, Oakleigh	2	2	Jersey ..	Werribee Fancy's Madeira 3rd	Jr. 3 yrs.	25799	30.9.29	273	20½	7,335	5·78	423·60	250	369
				Werribee Island Fancy's Madeira 2nd	Mature	16228	21.10.29	273	23	9,359	5·52	516·82	350	513
R. M. Chirnside, Whittlesea	1	1	Jersey ..	Fuchsia 9th of St. Albans ..	Sr. 3 yrs.	21586	5.12.29	273	12½	7,983	5·36	428·07	275	394
C. Chitty, Kernot	6	4	Jersey ..	Ewelme Master's Pearl ..	Jr. 2 yrs.	..	9.10.29	273	12½	5,838	5·67	331·04	200	
				Ewelme Southern Maid ..	Jr. 2 yrs.	..	18.10.29	273	11	5,072	5·80	294·13	200	
				Glen Iris Brown Rose ..	Jr. 3 yrs.	25301	20.10.29	273	6½	5,318	5·92	314·76	250	309
				Ewelme Redlight's Rosebud	Sr. 2 yrs.	Vol. 17	31.10.29	273	9	5,373	6·09	326·98	225	279
				Holly of Merridale	Mature	16365	10.11.29	273	9½	6,248	5·44	339·86	350	371
				Ewelme Girl 2nd	Mature	21183	27.11.29	273	..	5,457	5·82	317·39	350	368
W. J. Clark, Monomeith	3	3	Jersey ..	Koomangoonong Lady Diana	Mature	16344	5.10.29	273	11	9,542	5·24	500·39	350	568
				Koomangoonong Lady Betty	Mature	16343	12.10.29	273	13	8,642	5·26	454·32	350	413
				Murta Betty	Jr. 2 yrs.	..	28.11.29	273	20½	7,100	4·50	319·53	200	

STANDARD HERD RECORDS – *continued.*

Owner.	Records Completed.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lb.
									lb.	lb.		lb.	lb.	
A. C. and R. C. Clymo, Bamawn	6	4	Ayrshire	Nindethana Estella ..	Jr. 2 yrs.	21947	29.9.29	273	6	4,251	4·89	207·67	200	
				Nindethana Ladylike ..	Jr. 3 yrs.	21949	8.10.29	273	8½	4,728	4·90	231·72	250	
				Esteem of Gleneira ..	Mature	9732	17.10.29	273	12½	7,770	4·27	331·81	350	371
				Nindethana Esme	Jr. 3 yrs.	21946	26.10.29	273	5½	6,372	4·47	284·88	250	209
				Nindethana Isabella ..	Jr. 2 yrs.	21948	20.11.29	273	15	4,551	4·70	213·95	200	
				Omakaw Heath	Sr. 2 yrs	21980	30.11.29	273	18	5,875	4·29	252·04	225	232
J. Clyne, Upper Maffra West	9	9	Jersey ..	Peach 2nd of Swansea ..	Jr. 4 yrs.	21194	6.10.29	273	14	5,834	5·31	310·04	300	157, 278
				Maitland Petal 2nd of Elouera	Mature	15468	23.10.29	273	25	9,431	5·47	515·57	350	355, 375, 444, 486
				Paisley Coral	Jr. 4 yrs.	21187	26.10.29	273	11	6,111	5·76	352·13	300	203, 295
				Paisley Cora Lea	Sr. 2 yrs.	25323	12.11.29	273	12	4,425	6·32	279·61	225	
				Ipomea 2nd of Swansea ..	Jr. 4 yrs.	21191	12.11.29	273	26	8,805	5·57	490·78	300	307, 427
				Poppy 2nd of Swansea ..	Jr. 4 yrs.	21197	22.11.29	273	14	6,284	5·31	333·57	300	169, 341
				Flossie of Swansea	Sr. 3 yrs.	21189	28.11.29	273	17½	6,158	5·88	361·97	275	200, 312
				Swansea Fuchsia 3rd ..	Sr. 2 yrs.	24299	1.12.29	273	16	7,248	5·51	399·40	225	316
				Cora of Paisley	Mature	17720	17.12.29	273	18	7,298	5·64	411·88	350	302, 401, 368
Cockbill Bros., Bacchus Marsh	9	8	Ayrshire	Fulham Model	Jr. 4 yrs.	14645	27.9.29	273	13	6,974	4·63	323·09	300	273, 348
				Fulham Thelma	Jr. 3 yrs.	16059	30.9.29	240	4	5,700	4·21	239·85	250	219
				Fulham Toddler	Mature	13338	9.10.29	273	18	10,206	3·86	394·40	350	301, 184, 367
				Shamrock of Warrook ..	Mature	11084	26.10.29	273	16½	8,494	4·37	371·40	350	
				Fulham Ada	Jr. 2 yrs.	17931	29.10.29	273	17½	7,311	3·76	274·93	200	
				Fulham Goodyear	Jr. 2 yrs.	17935	23.11.29	273	16	6,234	4·80	299·35	200	
				Oakbank Bide-a-wee ..	Mature	15210	24.11.29	240	4	8,010	4·61	369·48	350	307
				Fulham Vanity	Mature	10920	29.11.29	273	12½	8,432	4·39	370·17	350	315, 426, 362, 315
				Cora of Burnside	Mature	8894	30.11.29	273	13	10,122	4·38	443·21	350	182, 125, 347, 373, 359, 468, 332
Cockbill Bros., Rockbank	3	2	Ayrshire	Fulham Grace	Jr. 2 yrs.	17936	17.10.29	273	11	5,450	4·13	225·19	200	
				Fulham Carrie	Jr. 2 yrs.	17933	20.10.29	273	6	3,783	4·93	186·61	200	
				Fulham Cassie	Jr. 2 yrs.	17934	6.11.29	273	13	4,898	4·83	236·74	200	
Cockbill Bros., Tongala	1	..	Ayrshire	Fulham Beauty ..	Mature	10902	30.11.29	273	8	7,099	3·73	264·44	350	225, 325, 266, 227

Standard Herd Records—*continued.*

Owner.	Records Completed.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lb.
									lb.	lb.		lb.	lb.	
D. E. Cook, Loch	1	1	Jersey ..	Olive Branch of Banyule ..	Mature	7126	29.10.29	273	4	7,059	5·01	353·83	350	257, 310, 318
J. Cook, Toora	2	2	Jersey ..	Wood Aurora	Jr. 2 yrs.	25816	20.10.29	273	12	4,266	5·82	248·20	200	
				Wood Aurora's Cream Duchess	Jr. 4 yrs.	23042	4.10.29	273	13	5,234	5·87	307·01	300	171, 283
T. A. P. Coombes, Tongala	1	1	Jersey ..	Ivinghoe Patricia	Sr. 2 yrs.	25814	1.12.29	210*	4	5,475	5·76	315·27	225	341
H. A. Cooper, Trafalgar	3	3	Jersey ..	Glenloch Mabel	Jr. 2 yrs.	24312	2.10.29	273	9½	3,779	6·35	240·11	200	
				Burnside Alfalfa	Sr. 3 yrs.	24310	20.10.29	273	8½	6,887	4·45	306·58	275	313
				Glenloch Pearl	Jr. 3 yrs.	23043	26.10.29	273	21½	8,748	5·61	491·16	250	334
C. Coughlin, Catani	3	1	Jersey ..	Glen Iris Nasturtion ..	Sr. 3 yrs.	18790	11.10.29	273	8½	6,090	5·44	331·08	275	
				Sweet Briar of Fairview ..	Mature	13761	21.11.29	273	N.O.C.	4,298	4·52	194·43	350	
				Gaiety Girl 15th of Melrose ..	Mature	16786	9.12.29	240	4	4,995	5·62	280·71	350	217, 290, 264, 371 372
H. Cowling, Mornington	7	6	Jersey ..	Edmonton Vixen	Jr. 4 yrs.	23050	27.9.29	273	17½	8,184	6·13	501·70	300	493
				Rarity 11th of Melrose ..	Mature	6944	28.10.29	273	13	8,843	4·94	436·62	350	365, 403, 334, 436 512, 511, 426 557
				Edmonton Fuchsia 5th ..	Jr. 3 yrs.	24314	12.11.29	273	12	6,264	5·99	375·00	250	378
				Trixie Lass of Edmonton ..	Mature	23049	12.11.29	273	13½	7,862	6·03	474·26	350	332, 394, 400
				Edmonton Fuchsia 4th ..	Jr. 4 yrs.	23046	15.11.29	273	10½	6,779	5·46	370·30	300	308, 401
				Chevy 13th of Melrose ..	Mature	11775	15.11.29	273	9½	9,195	5·75	528·71	350	285, 396, 493, 419, 535
				Fuchsia of Clematis ..	Mature	9676	23.12.29	273	22	6,069	5·14	311·83	350	169, 361, 350, 360 283

* Calved prematurely.

STANDARD HERD RECORDS—*continued.*

Owner.	Records completed.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lb.
									lb.	lb.		lbs	lb.	
A. Cox, Mt. Scoble	13	13	Jersey ..	Tavistock Honesty 2nd ..	Jr. 2 yrs.	..	1.10.29	273	..	4,760	6·56	312·08	200	
				Tavistock Lassie 2nd ..	Jr. 2 yrs.	..	9.10.29	273	14½	4,178	5·95	248·73	200	
				Tavistock Faith	Jr. 2 yrs.	..	12.10.29	273	18½	5,667	4·59	259·85	200	
				Audrey's Melba of Tavistock	Mature	18454	25.10.29	273	18½	8,840	4·98	439·93	350	345
				Honesty of Kameruka ..	Mature	12064	27.10.29	273	27	9,710	5·46	530·41	350	434
				Princess of Tavistock ..	Mature	11321	1.11.29	273	14	6,878	5·12	352·15	350	
				Tavistock May	Jr. 2 yrs.	..	11.11.29	273	13	4,118	6·12	251·89	200	
				Tavistock Rose	Jr. 2 yrs.	..	19.11.29	273	13	4,856	5·59	271·42	200	
				Tavistock Mystery's Duchess	Sr. 3 yrs.	23059	24.11.29	273	24½	8,271	4·44	366·90	275	
				Tavistock Patty	Jr. 2 yrs.	..	24.11.29	273	13	5,516	5·42	298·84	200	
				Tavistock Milkmaid ..	Jr. 2 yrs.	..	4.12.29	273	11½	4,253	4·77	202·83	200	
				Audrey's Pearl of Tavistock	Sr. 4 yrs.	18673	7.12.29	273	24½	7,902	5·87	463·46	325	
				Belgonia Stumpy 3rd ..	Jr. 2 yrs.	..	25.12.29	273	14½	5,189	5·67	294·00	200	
E. E. Davis, Bass	1	1	Jersey ..	Blackwood Grove Muriel ..	Jr. 2 yrs.	25340	29.10.29	273	7	3,626	6·35	230·20	200	
E. Day, Penshurst	1	1	Jersey ..	View Point Golden Bright ..	Sr. 2 yrs.	24326	24.11.29	273	19	6,219	6·30	392·04	225	263
J. Dee, Clyde North	1	1	Jersey ..	Maitland Petal of Clyde Vale	Sr. 3 yrs.	21246	3.10.29	273	13	7,034	5·57	392·02	275	382
T. G. Dellar, Portland	1	1	Jersey ..	Namesake 3rd of Warenda ..	Mature	15018	28.10.29	273	19	8,532	5·45	465·06	350	391, 485, 433
Department of Agriculture, Burnley	1	1	Jersey ..	Victoria Seasprite	Mature	..	27.10.29	273	24	8,120	5·55	450·80	350	351, 425, 391
	1	1	Friesian	Victoria Patti Belle ..	Mature	1707	30.9.29	273	30	13,476	3·41	459·56	350	274, 313
Department of Agriculture, Werribee	3	3	Friesian	Victoria Top Notch ..	Jr. 3 yrs.	3267	13.10.29	273	26½	9,847	3·83	377·36	250	
				Victoria Freemartin ..	Mature	2067	14.10.29	273	40	20,641	3·20	659·68	350	391, 400, 590, 654
				Victoria Lean Patch ..	Mature	1705	12.11.29	273	32½	19,682	3·55	699·58	350	326, 306, 577, 506

STANDARD HERD RECORDS—*continued*

Owner.	Record completed.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lb.
									lb.	lb.		lb.	lb.	
Department of Agriculture Werribee—*continued.*	11	10	Red Poll	Victoria Token	Sr. 3 yrs.	1673A	2.10.29	273	10	5,283	5·07	267·93	275	304
				Victoria Cutty Spark ..	Jr. 4 yrs.	1756B	9.10.29	273	24	9,777	4·02	392·70	300	401
				Victoria Gretna	Jr. 2 yrs.	..	24.10.29	273	17½	6,248	4·26	266·21	200	
				Victoria War Ghost ..	Sr. 2 yrs.	..	1.11.29	273	27	8,733	4·26	372·27	225	
				Victoria Vision	Jr. 2 yrs.	..	17.11.29	273	18	6,295	4·58	288·22	200	
				Victoria Songbird	Mature	1158A	21.11.29	273	18	8,345	4·66	389·28	350	306, 249, 376
				Victoria Cutaway	Mature	1241B	28.11.29	273	22½	9,449	4·24	400·42	350	248, 300, 356
				Victoria War Flame ..	Sr. 2 yrs.	..	2.12.29	273	22	6,334	4·71	298·11	225	
				Victoria Guilder	Sr. 2 yrs.	..	10.12.29	273	25½	7,631	4·53	345·88	225	
				Victoria Velbit	Sr. 2 yrs.	..	22.12.29	273	23	7,388	4·44	327·70	225	
				Victoria Velmar	Jr. 2 yrs.	..	26.12.29	273	20	6,384	4·36	278·65	200	
J. J. Desmond, Rochester	2	2	Jersey ..	Preston Farm Lass ..	Jr. 3 yrs.	25354	1.10.29	273	21	7,409	4·94	365·64	250	327
				Preston Countess 2nd ..	Sr. 2 yrs.	25353	23.10.29	273	22	7,065	4·91	346·63	225	279
De Soyres Bros., Kyabram	1	1	Jersey ..	Shamrock of Roselands ..	Mature	9390	21.11.29	273	17	6,936	5·53	383·44	350	
Dickinson Bros., Sebastopol	1	..	Friesian	Pauline 3rd of Ashby ..	Mature	1002	26.10.29	240	4	10,005	3·03	303·58	350	260, 255, 318, 345, 437
R. J. M. Dobson, Acheron	4	4	Jersey ..	Mundroola Lady Jennawarra	Mature	18690	7.10.29	273	18½	9,423	5·20	490·03	350	356
				Wattle Grove Junce ..	Jr. 3 yrs.	23110	20.10.29	273	12½	6,641	6·03	400·15	250	320
				Wattle Grove Jean ..	Sr. 3 yrs.	21256	20.11.29	273	22½	7,778	5·18	403·25	275	280
				Wattle Grove Sunbeam ..	Jr. 2 yrs.	25844	28.11.29	273	27	8,340	4·63	385·87	200	
Dookie Agricultural College, Dookie	5	3	Ayrshire	Dookie Iris	Mature	14714	6.10.29	273	4	7,568	4·17	315·71	350	248, 325
				Dookie Flora	Sr. 3 yrs.	17776	2.12.29	273	21½	10,155	4·33	439·47	275	317
				Dookie Diamond	Sr. 2 yrs.	21328	7.12.29	273	25	7,694	4·36	335·13	225	
				Dookie Peggy	Jr. 3 yrs.	21329	8.12.29	273	16	7,511	4·38	329·09	250	
				Dookie Doe	Sr. 4 yrs.	17775	16.12.29	273	21	6,858	4·36	299·11	325	371

Standard Herd Records—*continued.*

Owner.	Record completed.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lb.
									lb.	lb.		lb.	lb.	
Ducat and Sons, Shepparton	5	5	Jersey ..	Airlie Duchess 2nd	Jr. 2 yrs.	..	1.10.29	273	N.O.C.	9,587	5·27	505·36	200	
				Handsome Girl of Airlie ..	Sr. 4 yrs.	18696	27.11.29	273	22½	7,637	5·91	451·39	325	247, 224
				Buttercup of Airlie ..	Mature	10203	28.11.29	273	22	7,747	5·98	463·16	350	286, 370, 335
				Rosebud of Jerseyvale ..	Mature	14976	26.12.29	273	N.O.C.	6,959	5·58	388·01	350	174, 189
				Airlie Pansy 2nd	Jr. 2 yrs.	..	27.12.29	273	N.O.C.	5,567	5·54	308·66	200	
Dunbar Bros., Carlsruhe	3	1	Friesian	Wimmera Mona	Sr. 4 yrs.	2331	8.10.29	273	12	10,122	3·28	332·03	325	291
				Wimmera Judith	Sr. 2 yrs.	3273	18.11.29	240	4	6,668	3·23	215·46	225	
				Strathardle Sylvia Lulu ..	Mature	2053	25.12.29	273	23½	8,852	2·68	236·85	350	252
S. N. Earle, Merricks	2	1	Jersey ..	Goldfield Rita	Mature	25860	13.10.29	273	13	8,151	4·40	358·59	350	417
				Bell of Boorene	Mature	10139	16.11.29	273	18	6,864	4·89	335·89	350	174, 248, 281, 269
T. J. Edwards, Myrtlebank	2	2	Jersey ..	Sunny Brae Poppy ..	Jr. 2 yrs.	26364	14.11.29	273	11½	4,125	5·76	237·45	200	
				Sunny Brae Rosetta 2nd ..	Jr. 2 yrs.	25365	7.12.29	273	21½	6,581	5·23	344·44	200	
H. Elburn, Newlyn	3	..	Ayrshire	Butter of Roxburgh ..	Mature	7266	24.10.29	273	9	6,552	3·54	231·65	350	
				Bullecourt Holly	Jr. 4 yrs.	19578	27.10.29	273	4½	6,602	3·86	254·74	300	
				Bullecourt Violet	Jr. 2 yrs.	19582	10.11.29	240	4	3,495	4·12	144·04	200	
A. E. Ellis, Archie's Creek	2	1	Jersey ..	Mignonette 3rd of Brookfield	Mature	14232	8.10.29	273	N.O.C.	6,924	4·44	307·68	350	299
				Blackwood Valley Concord Lotus	Jr. 2 yrs.	..	23.10.29	273	17	6,464	4·61	297·76	200	
A. E. Enders, Stanhope	1	1	Friesian	Burnbank Pietertje Bainfield	Jr. 4 yrs.	3037	1.10.29	273	26	13,700	3·37	462·36	300	382, 426
N. H. Enders, Stanhope	1	1	Jersey ..	Arishma Joyful	Jr. 2 yrs.	..	29.9.29	273	21½	8,223	4·79	393·62	200	

Standard Herd Records—*continued.*

Owner.	Records Completed.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lb.
									lb.	lb.		lb.	lb.	
G. Esler, Tongala	3	2	Jersey ..	Maiwand Blossom	Mature	17426	11.10.29	273	4½	6,774	4·73	320·63	350	271, 392, 330
				Maiwand Daisy	Jr. 3 yrs.	25875	11.10.29	273	19½	7,256	5·41	392·27	250	370
				Maiwand Bloom	Jr. 3 yrs.	25874	2.11.29	273	13	6,174	5·17	319·45	250	343
A. Evans, Heywood	2	..	Jersey ..	Boronia Farm Virginia ..	Sr. 2 yrs.	23130	7.10.29	240	4	3,855	4·57	176·35	225	189
				Boronia Farm Queenie ..	Jr. 3 yrs.	21267	20.10.29	210	4	3,270	6·00	196·32	250	262
T. R. Findlay, Leitchville	2	2	Jersey ..	Leven Brae Gay Countess ..	Jr. 2 yrs.	..	9.10.29	273	11½	4,944	4·99	246·70	200	
				Leven Brae Fancy Madeira ..	Jr. 2 yrs.	25885	10.12.29	273	14	7,478	4·41	329·45	200	240
A. C. Fisken, Yendon	2	..	Milking Shorthorn	Morven Cressida 28th ..	Jr. 2 yrs.	..	20.10.29	273	4	4,377	4·32	189·18	200	
				Morven Queenie 20th ..	Sr. 3 yrs.	..	9.11.29	240	4	5,220	4·01	209·07	275	
A. Fixter, Boisdale	4	3	Guernsey	Mincha Vale Daphne ..	Mature	2682	28.10.29	273	17½	6,368	5·82	370·60	350	346
				Fernlea Rosebud	Jr. 2 yrs.	..	7.11.29	273	13½	4,961	5·74	284·68	200	
				Daffodil's Heiress of Mincha Vale	Mature	822	3.12.29	273	18½	6,008	5·19	311·80	350	269
				Fernlea Daffodil	Jr. 2 yrs.	..	13.12.29	273	17	5,238	5·54	290·32	200	
W. Fixter and Son, Boisdale	3	3	Jersey ..	Studleigh Duchess 4th ..	Sr. 2 yrs.	25290	7.11.29	273	10	4,913	6·13	301·07	225	274
				Olivedale Dolly	Jr. 2 yrs.	..	22.11.29	273	12½	4,718	5·57	262·85	200	
				Studleigh Duchess 6th ..	Jr. 2 yrs.	..	14.12.29	273	16	4,967	5·34	265·43	200	
Foster Bros., Boisdale	5	5	Jersey ..	King's Vale Canary 21st ..	Jr. 3 yrs.	24206	7.10.29	273	14	6,647	5·36	356·59	250	283
				Ballara Madeira	Jr. 3 yrs.	23145	7.11.29	273	13½	5,519	5·59	308·73	250	302
				Dolly 4th of King's Vale ..	Mature	16583	19.11.29	273	18½	7,976	5·35	426·76	350	312, 308 ,373, 431
				Staghorn Master's Beauty ..	Sr. 2 yrs.	23148	27.11.29	273	23	7,695	5·38	414·22	225	321
				Brunette 22nd of King's Vale	Sr. 3 yrs.	21084	22.12.29	273	23	7,971	5·29	421·80	275	309, 407

STANDARD HERD RECORDS—*continued.*

Owner.	Record completed.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lb.
									lb.	lb.		lb.	lb.	
G. A. Fraser, Addington	1	1	Ayrshire	Craigielea Daphne	Jr. 2 yrs.	17682	9.11.29	273	7½	5,766	4·17	240·24	200	
Mrs. E. M. Gange, Werribee	3	1	Ayrshire	Roseleigh Heather	Sr. 3 yrs.	16578	7.10.29	273	15	8,191	3·98	325·98	275	
				Roseleigh Starlight ..	Sr. 2 yrs.	20702	10.10.29	240	4	4,660	3·93	183·28	225	
				Miss Marie of Sunnyside ..	Mature	14302	12.10.29	150	4	4,455	3·69	164·44	350	
J. L. Gardener, Welshpool	2	2	Jersey ..	Golden Belle of Whare Koa	Mature	12957	12.10.29	273	9	6,660	5·57	370·76	350	327, 345, 385
				Lauriston Musical Belle ..	Jr. 2 yrs.	25892	31.10.29	273	10	4,376	5·27	230·79	200	
Mrs. M. S. Gardner, Nilma	1	1	Jersey ..	Lily's Maid of Comely Banks	Mature	13348	13.10.29	273	16½	7,922	5·09	402·92	350	313, 318
R. G. Gay, North Devon	2	1	Jersey ..	Hillcrest Ramona	Jr. 2 yrs.	25997	26.11.29	273	11½	3,713	4·61	171·13	200	
				Clarendon Eyre Alfalfa ..	Sr. 3 yrs.	..	26.10.29	273	25	7,026	5·42	380·53	275	316
Gibson Bros., Trafalgar	7	6	Jersey ..	Annie Laurie of Leathorne ..	Mature	16270	1.10.29	273	13½	6,804	5·51	374·62	350	302, 307, 407, 380,
				Leathorne Lilac	Mature	23163	7.10.29	273	18	7,362	5·71	420·56	350	318, 383
				Leathorne Mercedes' Gipsy Star	Jr. 2 yrs.	24366	16.10.29	273	13½	4,498	6·29	282·81	200	
				Pansy 4th of Ferntree Vale ..	Mature	9377	16.10.29	273	14½	7,478	5·16	385·56	350	408, 482, 452, 520, 484, 392
				Leathorne Peeress 2nd ..	Jr. 2 yrs.	24371	31.10.29	273	7½	2,856	5·93	169·32	200	
				Leathorne Easter Daisy ..	Jr. 2 yrs.	..	6.11.29	273	10½	3,522	6·09	214·45	200	
				Sweet Star of Glen Iris ..	Mature	14178	6.11.29	273	15	7,331	5·70	418·12	350	283, 337, 407, 375
A. W. Gorman, Alexandra	3	3	Ayrshire	Cathcart Merl	Jr. 2 yrs.	17495	27.9.29	273	18	6,506	3·84	250·00	200	
				Muriel of Cathcart	Sr. 4 yrs.	13522	27.9.29	273	12½	7,538	4·91	369·85	325	206, 208, 403
				Cathcart Poppy	Jr. 3 yrs.	15868	25.10.29	273	16	8,376	4·30	360·15	250	258

Standard Herd Records—*continued.*

Owner.	Records completed.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lb.
									lb.	lb.		lb.	lb.	
E. Hall, Tongala	1	..	Jersey ..	Verbena of Melwood ..	Mature	17433	8.10.29	273	12	6,339	5.49	348·24	350	260, 356, 304, 341
J. E. Handbury and Son, Toora	2	2	Jersey ..	Tooravale Lassie Fowler 4th	Jr. 2 yrs.	..	26.10.29	273	N.O.C.	4,242	5·02	213·06	200	
				Tooravale Maid's Princess 2nd	Jr. 2 yrs.	..	17.11.29	273	10	4,443	5·86	260·41	200	
D. C. Harker, Caldermeade	3	1	Ayrshire	Thirlmere Agnes	Sr. 3 yrs.	14895	13.10.29	273	7	5,675	4·22	239·35	275	211, 230
				Poppy of Thirlmere ..	Mature	12211	22.10.29	273	10	7,244	4·16	301·53	350	223, 296, 290
				Thirlmere Patsy	Jr. 2 yrs.	19072	22.10.29	273	11½	5,754	3·78	217·40	200	
W. T. Harker, Caldermeade	2	1	Ayrshire	Couleraggie Annie	Mature	14630	30.9.29	273	7½	7,587	3·89	294·76	350	
				Beauwarrin Ibex	Jr. 2 yrs.	17324	30.10.29	273	7	5,252	3·90	204·62	200	
J. W. Harris, Clyde	1	1	Jersey ..	Dingley Dell Mandoline ..	Jr. 3 yrs.	23200	5.10.29	273	10½	5,357	6·16	330·12	250	266
F. Harrison, Frankston	1	..	Jersey ..	Wallbundry Alpha 2nd ..	Jr. 2 yrs.	..	8.10.29	273	7½	3,339	4·65	155·41	200	
T. Harvey, Boisdale	3	3	Jersey ..	Empress 8th of Jerseyholm ..	Jr. 4 yrs.	18735	5.10.29	273	11	7,099	5·33	378·47	300	216, 342
				Jerseyholm Empress 10th ..	Jr. 3 yrs.	25396	10.11.29	273	16½	6,785	5·90	400·30	250	
				Kirsty 16th of Jerseyholm ..	Mature	18736	16.11.29	273	16½	8,028	5·67	455·18	350	351, 433 455
A. C. Head, Seymour	1	1	Jersey ..	Burnside Bluebelle 2nd ..	Jr. 4 yrs.	..	11.10.29	273	13	5,846	6·60	385·91	300	

Standard Herd Records—*continued.*

Owner.	Records completed.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk	Average Test.	Butter Fat.	Standard required	Previous Yields of Butter Fat in lb.
									lb.	lb.		lb.	lb.	
W. Henderson, Home Farm, Grasmere	7	7	Ayrshire	Brownie 13th of Carracoorte	Jr. 4 yrs.	15855	9.10.29	273	17	7,425	4·56	338·46	300	203, 248
				Iris 4th of Carracoorte ..	Mature	9386	11.10.29	273	12	8,654	4·98	430·75	350	251, 275, 265, 355, 423, 403
				Carracoorte Lucy 8th ..	Mature	15860	14.10.29	273	18	7,766	4·83	374·75	350	214, 342
				Carracoorte Lucy 10th ..	Jr. 2 yrs.	17471	14.10.29	273	21	6,596	3·70	244·01	200	
				Bunty 3rd of Carracoorte ..	Mature	9330	31.10.29	273	5	9,069	4·89	443·54	350	208, 341, 389, 195. 312, 402, 366,
				Viola 2nd of Carracoorte ..	Mature	9452	3.11.29	273	15	8,064	5·15	415·02	350	207, 292, 355, 345, 372, 399, 358
				Viola 8th of Carracoorte ..	Jr. 4 yrs.	15863	24.11.29	273	19	8,199	4·48	367·32	300	220, 284
W. Henderson, Share Farm, Grasmere	7	..	Ayrshire	Carracoorte Laurette ..	Jr. 4 yrs.	21132	30.9.29	273	4½	5,340	4·94	263·88	300	200
				Rosebloom 7th of Carracoorte	Mature	9438	6.10.29	273	6½	5,840	4·21	246·14	350	171, 260, 239, 177. 215, 306, 268
				Carracoorte Betsy 18th ..	Sr. 4 yrs.	17444	6.10.29	180	4	3,165	4·13	130·67	325	191
				Carracoorte Filpail 15th ..	Jr. 3 yrs.	17461	22.10.29	273	6½	5,141	4·37	224·76	250	
				Bunty 2nd of Carracoorte ..	Mature	6419	28.10.29	273	8½	7,031	4·13	290·50	350	250, 241, 304 364, 306, 342, 309, 263
				Betsy 10th of Carracoorte ..	Mature	9320	3.11.29	273	7½	6,081	4·53	275·62	350	238, 212, 238, 386, 356
				Dairylass 2nd of Carracoorte	Mature	9348	17.11.29	273	4½	6,516	4·46	290·62	350	364, 246, 325, 264
Mrs. E. Hitchens, Werribee	2	1	Jersey ..	Strathey Ina	Sr. 3 yrs.	23337	28.9.29	240	4	5,640	4·33	244·27	275	279
				Lady of Sunnybrook ..	Mature	6848	19.10.29	273	12½	7,163	5·33	381·55	350	350
A. Hubbard, Yarra Glen	4	..	Ayrshire	Emoh Ruo Firefly	Sr. 3 yrs.	14945	12.10.29	210	4	4,770	3·53	168·20	275	208
				Emoh Ruo Louise Lovely ..	Sr. 3 yrs.	14946	21.10.29	180	4	4,500	4·58	206·01	275	207
				Emoh Ruo Dimples ..	Sr. 3 yrs.	14944	22.10.29	210	4	4,110	3·61	148·23	275	167
				Miss Prim of Emoh Ruo ..	Sr. 4 yrs.	13678	3.11.29	273	19	6,599	4·16	274 74	325	268, 276
J. A. Huffer, Gormandale	4	4	Jersey ..	Glen Valley Rosemary ..	Sr. 2 yrs.	24403	8.10.29	273	16	5,988	5·82	348·71	225	300
				Rosebud's Perree's Fancy of Glen Valley	Sr. 3 yrs.	21357	22.10.29	273	17	9,098	4·90	445·48	275	307, 411
				Glen Valley Quick Countess ..	Jr. 2 yrs.	25430	12.11.29	273	19½	7,304	5·37	391·95	200	
				Melrose Handsome Girl 14th..	Sr. 2 yrs.	25697	10.12.29	273	17½	6,125	6·22	380·73	225	217

Standard Herd Records—*continued.*

Owner.	Records completed.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lb.
									lb.	lb.		lb.	lb.	
W. H. Hurry, Koonwarra	1	1	Jersey ..	Kooreena Minerva	Sr. 3 yrs.	23223	5.10.29	273	12½	7,103	5·21	370·42	275	286, 404
J. Hutchinson and Sons, Somerville	1	1	Jersey ..	Somerville Babs 3rd ..	Jr. 2 yrs.	25954	6.11.29	273	20	6,167	4·94	304·45	200	
A. B. Ingram, Powelltown	1	..	Illawarra Milking Shorthorn	Diamond 24th of Glenburn. ..	Jr. 2 yrs.	11442	28.11.29	273	8	3,579	3·44	123·07	200	
W. T. Jephson, Gelliondale	1	1	Jersey ..	Maudbank Charming Girl ..	Sr. 4 yrs.	21368	6.10.29	273	4	5,523	5·96	329·16	325	417
G. A. Kent, Archie's Creek	3	1	Ayrshire	Woolamai Pledge	Sr. 2 yrs.	17016	30.9.29	273	8	7,002	4·63	324·06	225	221
				Woolamai Mildred	Jr. 4 yrs.	14997	14.10.29	273	11	7,806	3·67	286·67	300	234, 309
				Pearl of Woolamai Park ..	Sr. 4 yrs.	13753	27.10.29	273	7	6,211	4·34	269·35	325	226, 298, 291
W. H. King, Warragul	1	1	Jersey ..	Karoola Marie	Jr. 2 yrs.	25442	14.10.29	273	14	5,685	5·61	318·67	200	
T. Knowles, Dandenong	10	10	Ayrshire	Beleura Nicotine	Jr. 2 yrs.	19499	28.9.29	273	15½	6,153	4·06	250·10	200	
				Dandy Princess Betty ..	Jr. 2 yrs.	17733	30.9.29	273	16½	6,500	4·06	263·96	200	
				Beleura Colleen 3rd ..	Jr. 2 yrs.	19481	22.10.29	273	24½	7,871	3·99	314·40	200	
				Beleura Primula 3rd ..	Jr. 2 yrs.	19510	5.11.29	273	4	5,057	4·43	223·85	200	
				Fanny of Rosstrevor ..	Mature	13349	14.11.29	273	14½	9,720	3·90	378·73	350	263, 297, 387
				Fernhill Betty	Mature	15539	3.12.29	273	6½	9,357	4·50	420·96	350	300, 323
				Dandy Palm	Jr. 2 yrs.	17729	9.12.29	273	12	5,591	4·66	260·57	200	
				Dandy Plum	Jr. 2 yrs.	17730	13.12.29	273	18½	6,093	4·49	273·57	200	
				Beleura Petrel	Jr. 2 yrs.	19506	17.12.29	273	17	6,686	4·06	271·48	200	
				Beleura Pansy	Jr. 3 yrs.	15720	18.12.29	273	21½	8,805	4·19	369·11	250	334

STANDARD HERD RECORDS—*continued.*

Owner.	Records Completed.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lb.
									lb.	lb.		lb.	lb.	
Koenig Bros., Mooroopna North	1	1	Ayrshire	Oakbank Quince	Mature	15284	4.11.29	273	N.O.C.	10,127	3·97	401·55	350	388
A. Lade, Alexandra	1	1	Jersey ..	Hyoke Flower	Jr. 2 yrs.	..	4.11.29	273	7	3,803	5·86	222·91	200	
K. D. Lane, Merino	2	2	Jersey ..	Dalray's Hazel	Sr. 2 yrs.	23249	13.10.29	273	12½	5,481	4·47	245·00	225	212
				Dalray Lady	Jr. 2 yrs.	26008	1.12.29	273	15½	5,136	5·82	298·82	200	
P. H. Lawrence, Tarrawarra	2	..	Jersey ..	Rainga Princess Poppy Girl..	Jr. 2 yrs.	24443	30.10.29	273	4½	2,557	6·49	166·03	200	
				Choirmaster's Queen of Rainga	Mature	12954	5.11.29	273	8½	5,232	5·77	301·88	350	242, 228, 252, 312
Mrs. E. M. Lennie, Tongala	1	1	Jersey ..	The Valley Myra 5th ..	Sr. 2 yrs.	26023	25.10.29	273	9	4,497	5·05	227·21	225	299
Leongatha High School, Leongatha	3	2	Jersey ..	Vanity of Woorayl ..	Mature	11212	3.10.29	273	7	5,481	6·32	289·74	350	364, 454, 552, 501 371, 438
				Woorayl Astra 3rd	Jr. 2 yrs.	25708	7.10.29	273	14½	5,760	5·90	339·81	200	
				Cream Star of Woorayl ..	Mature	14936	10.11.29	273	15½	6,321	6·04	381·61	350	282, 390, 273, 396, 384
Longerenong College, Dooen	3	..	Ayrshire	Longerenong Gloria 2nd ..	Jr. 2 yrs.	20482	29.9.29	240	4	3,450	4·65	160·56	200	
				Merle of Longerenong ..	Mature	12435	27.9.29	240	4	6,780	4·13	279·68	350	283, 314, 269, 322
				Dolichos of Longerenong ..	Mature	9789	2.10.29	210	4	6,630	3·85	255·21	350	
Mrs. L. Lowing, Tongala	5	5	Jersey ..	Fern of Jerseyvale	Mature	19936	24.10.29	273	21	7,029	5·83	409·55	350	321, 283
				Troed-Yr-Rhiw-Tawelwych ..	Jr. 2 yrs.	26048	30.10.29	273	26	8,363	5·68	474·69	200	432
				Mystery 2nd of Belgonia ..	Mature	18858	12.11.29	273	17½	7,402	5·74	424·71	350	298, 331
				Patricia of Jerseyvale ..	Mature	18886	3.12.29	273	22	6,947	6·46	448·92	350	217, 295
				Nellie of Jerseyvale.. ..	Sr. 4 yrs.	21543	5.12.29	273	13	7,055	5·35	377·47	325	226, 242, 339

STANDARD HERD RECORDS—*continued.*

Owner.	Record Completed	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lb.
									lb.	lb.		lb.	lb.	
C. G. Lyon, Heidelberg	6	6	Jersey ..	Banyule Silvermine 47th ..	Jr. 2 yrs.	24467	3.10.29	273	21½	6,976	4·69	327·09	200	
				Banyule Silvermine 46th ..	Jr. 2 yrs.	24466	3.10.29	273	21½	7,620	5·12	390·28	200	
				Silver May of Banyule ..	Mature	16693	1.11.29	273	16½	6,906	5·30	366·19	350	377, 365
				Banyule Silvermine 49th ..	Jr. 2 yrs.	24469	13.11.29	273	17½	5,982	4·72	282·32	200	
				Tiddlewinks of Banyule ..	Mature	11613	17.11.29	273	21½	7,916	5·65	447·43	350	441, 462, 578, 492
				Banyule Molly 28th ..	Jr. 2 yrs.	24461	12.12.29	273	18½	5,933	5·42	321·38	200	
C. W. W. Macauley, Rochester	3	3	Jersey ..	Taranah Rosleaf	Mature	23293	10.11.29	273	11½	6,920	5·68	392·96	350	292, 357, 381
				Taranah Trifle	Jr. 2 yrs.	..	1.12.29	273	12½	3,947	6·21	244·94	200	
				Taranah Royal Rose ..	Sr. 2 yrs.	25548	2.11.29	273	18	6,999	5·25	367·50	225	333
J. McDougall, Byaduk	6	5	Jersey ..	Park View Nola	Jr. 3 yrs.	24480	27.10.29	273	12	6,506	5·70	370·61	250	311
				Peggy of Park View ..	Mature	15014	17.11.29	273	29	11,387	5·30	603·51	350	387, 387, 431, 528
				Parkview Mayflower ..	Jr. 3 yrs.	24479	27.11.29	273	9½	5,400	6·11	330·04	250	326
				Bonnie Jean of ParkView ..	Jr. 4 yrs.	21451	10.11.29	273	6	5,285	5·01	264·60	300	290, 375
				Parkview Flo	Jr. 2 yrs.	26054	26.11.29	273	14	4,469	4·76	212·84	200	
				Parkview Fairy	Jr. 3 yrs.	24478	6.12.29	273	12½	5,526	4·92	271·88	250	284
J. McErvale and Son, Camperdown	3	3	Jersey ..	Beauty of Castlemaddie ..	Jr. 4 yrs.	21477	27.10.29	273	8½	7,280	6·20	451·60	300	361
				Cumnock's Opal	Jr. 4 yrs.	23269	1.11.29	273	21	6,867	5·94	407·82	300	331
				Glenfield Curio	Sr. 4 yrs.	17728	18.11.29	273	7	6,722	5·45	366·39	325	344
E. A. McNabb and Son, Irrewillipe East	5	4	Jersey ..	Chief's Marie of Boorene ..	Jr. 4 yrs.	21104	8.10.29	273	23	7,758	5·18	402·07	300	452
				Mercedes' Queen of Avalon ..	Mature	16601	10.10.29	273	16½	6,779	5·70	386·50	350	325, 367, 374, 436
				Maxon Lodestone	Jr. 2 yrs.	..	7.12.29	273	14½	4,407	5·79	255·20	200	
				Boorene Silver Lady ..	Sr. 2 yrs.	25249	11.12.29	273	22	6,797	4·84	328·66	225	288
				Defender's Favourite of Boorene	Mature	9225	15.12.29	273	18	6,420	5·02	322·57	350	417, 382, 409, 450, 552, 506

STANDARD HERD RECORDS—*continued.*

Owner.	Records completed.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lb.
									lb.	lb.		lb.	lb.	
Mesdames McWhae and Silvester.	4	3	Guernsey	Minnamurra Rosette 2nd ..	Jr. 2 yrs.	2215	1.10.29	273	9½	4,570	5·27	240·73	200	
				Wollingbar Parson's Red Rose 44th	Jr. 4 yrs.	1383	2.10.29	273	8½	6,804	5·02	341·24	300	
				Wollingbar Rosalie ..	Jr. 2 yrs.	1894	21.10.29	273	8	4,992	4·88	243·57	200	
				Knightlea Favourite ..	Jr. 4 yrs.	1407	21.11.29	273	4½	5,489	5·29	290·47	300	287, 211
Maher Bros., Seymour	2	..	Ayrshire	Evelyn Satinbird	Jr. 4 yrs.	15077	13.10.29	150	4	3,810	3·87	147·52	300	230
				Evelyn Countess	Jr. 2 yrs.	19974	20.10.29	180	4	3,525	3·39	119·47	200	
R. Maher, Tongala	1	..	Jersey ..	Laura of Rosemont.. ..	Mature	12992	28.11.29	240	4	5,685	5·40	307·17	350	232, 390, 476, 467, 360, 429
Dr. R. Mailer, Shepparton	8	6	Jersey ..	Violet Vale Hope	Sr. 2 yrs.	24423	3.10.29	273	N.O.C.	4,923	5·58	274·88	225	
				Manaroo Margaret's Silvermine Lass	Sr. 2 yrs.	26071	18.10.29	240	4	4,050	5·99	242·76	225	295
				Manaroo Daphne 2nd's Lass	Jr. 2 yrs.	..	25.10.29	273	4	3,944	5·68	223·84	200	
				Manaroo Daphne 4th's Lass ..	Jr. 2 yrs.	..	5.11.29	273	N.O.C.	4,116	5·72	235·40	200	
				Manaroo Marge's Lass ..	Jr. 2 yrs.	..	7.11.29	273	14	5,021	5·24	262·96	200	
				Coolwoola Ruby 3rd ..	Jr. 2 yrs.	26068	8.11.29	240	4	4,595	5·40	247·95	200	
				Bonny 3rd of Ilford ..	Mature	13730	15.11.29	273	12	5,610	5·09	285·76	350	
				Manaroo Margaret's Favourite Lass	Jr. 3 yrs.	26070	3.12.29	273	7½	4,386	5·64	247·56	250	232
A. J. Mapleson, Jindivick	10	9	Jersey ..	Rarity of Merridale.. ..	Mature	9554	10.10.29	273	15	7,880	5·15	405·76	350	429, 392, 453
				Hazeldale Ruby 3rd ..	Jr. 2 yrs.	..	11.10.29	273	9	5,309	5·00	265·42	200	
				Hazeldale Pearly Maid ..	Jr. 2 yrs.	..	12.10.29	273	12	5,448	6·31	343·71	200	
				Hazeldale Pure Lass ..	Jr. 2 yrs.	..	14.10.29	273	8½	4,077	6·18	251·98	200	
				Hazeldale Bracelet	Jr. 3 yrs.	25551	20.10.29	273	12	7,476	5·41	404·25	350	333
				Sea Shell of Hazeldale ..	Mature	13758	24.10.29	273	10½	7,365	5·69	418·90	350	480, 359, 462
				Hazeldale Pearl 2nd ..	Jr. 2 yrs.	..	1.11.29	273	9	3,923	5·10	200·13	200	
				Opal of Hazeldale	Mature	21500	1.12.29	273	8	6,110	5·19	317·33	350	259, 366
				Moonshine of Hazeldale ..	Jr. 2 yrs.	..	1.12.29	273	19½	6,506	5·37	349·65	200	
				Hazeldale Ruby 2nd ..	Jr. 3 yrs.	25555	12.10.29	273	8½	6,386	5·10	325·97	250	294

Standard Herd Records—*continued.*

Owner.	Records Completed.	Number Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard Required.	Previous Yields of Butter Fat in lb.
									lb.	lb.		lb.	lb.	
A. R. Marshman, Archie's Creek	1	..	Jersey ..	Forgan Vanity	Jr. 3 yrs	23312	18.10.29	273	11	3,828	5.31	203.14	250	
T. Mesley, Dalyston	2	2	Jersey ..	Meadow Queen of Warenda ..	Mature	17805	30.9.29	273	22½	8,897	5.36	477·17	350	322, 313, 343, 387
				Warenda Gazelle 7th ..	Jr. 2 yrs.	..	22.12.29	273	19½	6,233	6.43	400·85	200	
E. M. Middleton Hamilton	3	2	Jersey ..	Castlemaddie Duchess 2nd ..	Jr. 2 yrs.	..	9.10.29	273	12½	4,624	5·22	241·34	200	
				Castlemaddie Lucille ..	Jr. 2 yrs.	..	29.11.29	273	16	5,511	5·89	324·50	200	
				Hawthorn 8th of Banyule ..	Mature	9484	19.12.29	273	20	5,546	5·36	297·51	350	354, 400, 344
J. Moore and Co., Yarram	2	1	Jersey ..	Tooloonook Boltonia ..	Jr. 2 yrs.	..	3.10.29	273	6	3,786	5·65	213·86	200	
				Cilanthus 2nd of Springhurst	Mature	16962	20.10.29	273	9½	5,615	5·31	298·14	350	
W. J. Muhlebach, Batesford	4	3	Ayrshire	Retreat White Primrose ..	Sr. 2 yrs.	16560	27.9.29	273	5	5,117	4·09	209·46	225	
				Pearl of Retreat	Sr. 4 yrs.	13904	28.9.29	273	8	7,430	4·49	333·76	325	
				Retreat Laurette	Sr. 2 yrs.	16557	1.10.29	210	4	5,850	4·70	274·96	225	
				Retreat Poppy	Jr. 3 yrs.	16559	2.10.29	273	N.O.C.	5,967	4·49	267·68	250	
W. X. Muhlebach, Batesford	2	1	Jersey ..	Strathey Lady	Jr. 2 yrs.	..	3.10.29	273	5½	4,739	5·01	237·25	200	
				Golden Girl of Wattle Bank ..	Mature	17811	14.10.29	273	9½	6,703	5·05	338·58	350	
E. Nicholls, Springhurst	1	1	Jersey ..	Pearl of Blowering	Jr. 4 yrs.	21539	26.11.29	273	19	6,850	4·46	305·61	300	303, 273
B. R. O'Meara, Caldermeade	2	1	Ayrshire	Choice of Hillcrest	Mature	9081	13.10.29	240	4	6,420	4·56	292·69	350	153, 205, 247, 251, 249, 352
				Queenie of Waverley ..	Mature	7520	7.12.29	273	26½	11,406	3·78	431·20	350	424

STANDARD HERD RECORDS—*continued.*

Owner.	Record completed.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lb.
									lb.	lb.		lb.	lb.	
W. H. Onley, Caldermeade	1	1	Ayrshire	Holm Bunty	Jr. 2 yrs.	18281	17.12.29	273	15½	5,264	4·53	238·62	200	
Mrs. L. Orchard, Shepparton	3	3	Jersey ..	Jersey Vale Princess 3rd ..	Jr. 2 yrs.	..	17.10.29	273	15½	4,635	5·37	248·94	200	
				Jersey Vale Lassie	Jr. 4 yrs.	..	29.10.29	273	16	5,634	5·72	322·53	300	231
				Jersey Vale Doris	Jr. 3 yrs.	24535	29.10.29	273	13	6,191	5·62	347·87	250	287
Mrs. A. C. Overend, Sale	1	..	Jersey ..	Bon Accord Gem	Jr. 2 yrs.	..	9.12.29	273	13	3,279	6·00	196·80	200	
I. Padgett, Werribee	3	3	Friesian	Lady Veeman Homestead ..	Mature	..	24.11.29	273	38	14,123	3·85	543·81	350	
				Braemore Dairymaid ..	Jr. 2 yrs.	..	4.12.29	273	30	8,790	3·57	313·62	200	
				St. Alban's Lady Echo ..	Mature	2292	16.12.29	273	N.O.C.	14,653	3·72	544·92	350	
W. Parbury, Warburton	6	4	Jersey ..	Jessamine 2nd of Brookfield	Mature	15588	28.9.29	273	15	7,930	5·36	424·97	350	350, 382, 397
				Betty 4th of Brookfield ..	Mature	21547	13.10.29	273	8	4,553	4·96	225·96	350	281, 291, 305
				Golden Maid 4th of Brookfield	Jr. 4 yrs.	21557	19.10.29	273	14½	6,601	5·85	386·47	300	307
				Verbena 9th of Brookfield ..	Sr. 4 yrs.	18902	28.10.29	273	N.O.C.	6,068	5·08	308·46	325	231, 308
				Beauty 9th of Brookfield ..	Jr. 4 yrs.	21546	5.12.29	273	26	8,300	4·43	367·48	300	236, 313
				Brookfield Beauty 11th ..	Jr. 2 yrs.	..	8.12.29	273	20	6,230	4·91	305·97	200	
Pettitt Bros., Geelong	2	2	Ayrshire	Blinkbrae Vida 2nd ..	Jr. 4 yrs.	15767	28.10.29	273	13	7,992	4·06	324·38	300	293
				Melba 2nd of Blinkbrae ..	Mature	14072	12.11.29	240	4	7,838	4·76	373·09	350	
J. Phillips, Murraydale	2	1	Jersey ..	Hope's Surprise of Peri ..	Mature	17819	8.10.29	273	N.O.C.	7,983	4·15	331·23	350	259, 278, 362
				Peri Carnation 2nd ..	Jr. 3 yrs.	26129	5.11.29	273	13	5,796	5·36	310·62	250	216

Standard Herd Records—*continued.*

Owner.	Record completed.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lb.
									lb.	lb		lb.	lb	
J. Platfuss, Tongala	9	7	Friesian	Tarrawarra 56	Mature	1414	26.10.29	273	4½	20,277	2·70	547·48	350	588, 641, 621, 629
				Burnbank Spring Patch ..	Mature	1819	1.11.29	273	17	10,494	3·26	342·52	350	312, 252, 304, 361
				Greenvale Graceful Segis ..	Jr. 2 yrs.	3102	6.11.29	273	12	8,129	3·37	274·11	200	
				Greenvale Dewdrop ..	Jr. 3 yrs.	92, App. 3	25.11.29	273	17	6,938	4·02	278·74	250	260
				Glen Elgin Patchline De Kol	Jr. 4 yrs.	3095	29.11.29	210	4	5,775	3·61	208·62	300	215
				Riverbank Spring Patch ..	Jr. 4 yrs.	2245	5.12.29	273	17	8,090	3·90	315·20	300	339
				Westmere Oakwood Duchess	Mature	602	9.12.29	273	40	19,031	3·43	653·46	350	352, 319, 638, 703, 817, 687
				Greenvale Dutch Girl ..	Jr. 3 yrs.	2769	15.12.29	273	33½	14,921	3·53	526·95	250	409
				Greenvale Topsy Paxton ..	Jr. 3 yrs.	3109	18.12.29	273	19½	8,301	3·27	271·03	250	232
M. Polmear, Tallangatta Valley	2	..	Friesian	Fairview Snowdrop.. ..	Jr. 3 yrs.	91, Vol. 8, App. 3	3.10.29	240	4	5,410	3·55	191·82	250	
				Fairview Silvia	Sr. 2 yrs.	92, V. 10, App. 3	11.10.29	273	S.o.c.	5,900	3·04	179·33	225	
J. Powell, Camperdown	4	3	Jersey ..	Lily of Allambee	Mature	18919	7.10.29	273	9½	6,378	4·94	315·27	350	
				Mount Violet Maud ..	Mature	18920	6.10.29	273	13	7,281	5·26	382·84	350	361
				Mount Violet Silver Queen ..	Jr. 2 yrs.	24552	7.10.29	273	13	6,240	5·15	321·39	200	222
				Mount Violet Kyeema ..	Jr. 3 yrs.	23374	3.12.29	273	13	6,318	4·79	302·74	250	
R. Poyner, Lilydale	3	3	Jersey ..	Cream Belle of Kirkhill ..	Sr. 3 yrs.	21519	27.9.29	273	13	6,968	5·39	375·71	275	270, 360
				Kyora Golden Jazz ..	Jr. 4 yrs.	23406	15.11.29	273	20½	8,665	5·23	453·29	300	360, 415
				Kyora Foch's Anthem II. ..	Jr. 4 yrs.	23405	5.12.29	273	11	6,496	4·98	323·72	300	285, 317
A. Prout, Leongatha	2	2	Jersey	Wattle Vale Golden Girl ..	Jr. 3 yrs.	24307	9.10.29	273	13	7,265	5·68	412·81	250	366
				Wattle Vale Sunny ..	Jr. 2 yrs.	26311	19.10.29	273	16½	5,810	5·52	320·58	200	
R. Purnell, Moriac	1	1	Jersey	Narrawong Quality 3rd ..	Jr. 3 yrs.	..	9.10.29	273	15½	6,288	6·35	399·32	250	

Standard Herd Records—*continued.*

Owner.	Records completed.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lb.
									lb.	lb.		lb.	lb.	
Quigley and Bennett, Yinnar	2	2	Jersey ..	Ellendale Kirsty 4th ..	Jr. 2 yrs.	..	9.10.29	273	9½	5,067	5·70	288·58	200	
				Ellendale Kirsty	Jr. 3 yrs.	..	17.11.29	273	16	6,077	5·62	341·82	250	
Raggatt, Tongala	1	1	Jersey ..	Strathbow Princess 7th ..	Jr. 2 yrs.	26157	13.10.29	273	15	5,153	4·90	252·70	200	
Miss H. E. Raleigh, Pakenham Upper	2	1	Jersey ..	Burnside Gavotte	Jr. 3 yrs.	24558	19.10.29	273	11½	4,242	5·80	245·97	250	341
		..		Goronga Farm Daffodil's Chicane	Sr. 2 yrs.	26159	26.10.29	273	10½	4,631	5·39	249·57	225	263
J. D. Read, Springhurst	1	1	Jersey ..	Tecoma of Springhurst ..	Mature	12225	29.10.29	273	34	9,809	5·10	500·14	350	288, 428, 430, 484, 565, 605
W. S. Richardson, Bacchus Marsh	6	2	Jersey ..	Sutton Lea Latricia ..	Jr. 4 yrs.	23395	27.10.29	273	10	5,777	5·09	294 15	300	235, 195, 294
				Silvermine 34th of Banyule ..	Sr. 4 yrs.	18813	25.11.29	273	9	4,512	5·13	231·30	325	281, 349
				Garenne 5th of Warenda ..	Mature	15557	30.9.29	273	N.o.c.	5,277	5·84	308·42	350	384, 437, 345, 394, 321
				Sutton Lea Jenny	Sr. 3 yrs.	23394	2.12.29	273	11½	4,665	6·26	292·13	275	237, 265
				Sutton Lea Patricia ..	Sr. 2 yrs.	26438	14.12.29	273	12½	4,373	5·72	249·94	225	285
				Sutton Lea Midge	Jr. 2 yrs.	..	23.12.29	273	10	3,576	5·00	178·74	200	
Miss S. L. Robinson, Kew East	4	3	Jersey ..	Isabela Rose Dream ..	Mature	14379	11.10.29	273	14½	5,435	5·77	313·83	350	369, 360
				Kyora Bonnies Chance ..	Jr. 2 yrs.	26440	13.10.29	273	12	4,355	5·44	236·90	200	
				Kyora Creamy 4th	Jr. 2 yrs.	..	20.10.29	273	16½	6,050	5·09	307·68	200	
				Naldera of Woodside ..	Mature	14170	27.10.29	273	12½	7,040	5·21	366·67	350	293, 340, 373, 312
W. P. Rogen, Tatura	1	1	Jersey ..	Kantara Sun Flower ..	Jr. 4 yrs.	21627	4.11.29	273	19	7,181	5·21	374·37	300	

Standard Herd Records—*continued*.

Owner.	Records completed.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lb.
									lb.	lb.		lb.	lb.	
G. Rowe, Kardella	2	2	Jersey ..	Welbourne Star	Jr. 2 yrs.	..	28.9.29	273	N.O.C.	5,072	4·76	241·67	200	
				Welbourne Panzie Gem ..	Jr. 2 yrs.	..	14.10.29	240*	N.O.C.	3,975	5·49	218·07	200	
C.M. Runciman, Murraydale	1	..	Jersey ..	Canary 7th of Goulburn ..	Mature	19870	25.10.29	210	4	3,360	6·13	206·07	350	246, 232, 286
D. M. Ryan and Sons, Pirron Yallock	3	3	Illawarra Milking Shorthorn	Hope 3rd of Bona Vista ..	Jr. 2 yrs.	..	16.10.29	273	27½	10,640	3·59	382·02	200	
				Tiny 11th of Bona Vista ..	Jr. 2 yrs.	..	20.10.29	240	4	5,685	3·64	206·80	200	
				Red 3rd of Glenburn ..	Jr. 2 yrs.	..	31.10.29	273	16½	6,357	4·56	289·72	200	
R. W. Sadler, Noorat	2	..	Ayrshire	Cameo of Burnbrae.. ..	Mature	14128	6.10.29	273	5½	7,008	4·17	292·16	350	237
				Oakbank Bluff	Sr. 4 yrs.	15214	23.10.29	273	9½	6,449	3.90	251·52	325	257
W. A. Sandles, Mt. Best	8	3	Jersey ..	Franklin Park Mona ..	Jr. 3 yrs.	24593	5.10.29	273	10	5,058	4·99	252·33	250	249
				Lady Betty of Ferndale ..	Mature	9696	8.10.29	273	9½	7,563	5·31	401·93	350	352, 366, 372
				Lady May of Ferndale ..	Mature	9697	15.10.29	273	7	7,060	4·90	345·61	350	355, 381, 383, 430
				Queenie of Franklin Park ..	Mature	16750	17.10.29	273	6½	6,627	5·28	350·03	350	256, 253, 363
				Franklin Park Molly ..	Jr. 3 yrs.	24592	22.10.29	273	6½	4,547	5·27	239·56	250	262
				Lady Joan of Franklin Park..	Sr. 4 yrs.	18960	23.10.29	273	9	5,606	5·48	307·18	325	241, 336
				Franklin Park Una ..	Jr. 3 yrs.	24595	7.11.29	273	7	4,580	4·34	198·60	250	
				Franklin Park Buttercup ..	Jr. 3 yrs.	24590	18.12.29	180	4	2,445	4·84	118·33	250	
Salesian College, Sunbury	3	..	Ayrshire	Grace of Roseleigh	Mature	7301	31.10.29	273	N.O.C.	7,048	3·84	270·31	350	297, 255, 231, 172, 254
				Rene of Retreat	Mature	12598	1.11.29	273	18	6,341	3·82	242·03	350	223, 304
				Rupertswood Lady Mac ..	Jr. 4 yrs.	20710	28.11.29	273	4	6,164	4·24	261·35	300	

* Herd withdrawn.

STANDARD HERD RECORDS—*continued.*

Owner.	Records completed.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lb.
									lb.	lb.		lb.	lb.	
A. H. Schier, Kernot	14	2	Ayrshire	Scotswood Margaret ..	Jr. 4 yrs.	16617	28.9.29	240	4	3,413	4·29	146·52	300	200
				Gleneira Molly Algie ..	Jr. 2 yrs.	20146	27.9.29	273	7½	3,921	4·07	159·75	200	
				Ben Kell Winnette ..	Sr. 3 yrs.	15422	29.9.29	210	4	5,205	4·29	223·25	275	240
				Scotswood Mabs	Mature	11367	3.10.29	273	11	6,168	4·54	279·90	350	234, 221, 271
				Gleneira Satin	Jr. 3 yrs.	18090	6.10.29	273	7½	6,347	3·82	242·24	250	
				Scotswood Silkie	Sr. 3 yrs.	16629	11.10.29	240	4	6,270	3·69	231·36	275	208
				Scotswood Milkmaid ..	Jr. 2 yrs.	20741	19.10.29	273	N.O.C.	4,184	4·49	187·77	200	
				Scotswood Lady Virtue ..	Sr. 2 yrs.	18919	19.10.29	273	4½	5,585	4·64	259·12	225	
				Oakbank Zeta	Mature	15336	27.10.29	180	4	3,255	4·13	134·28	350	176
				Dairy Lass of Ben Kell ..	Mature	11344	5.11.29	240	4	4,800	4·48	215·26	350	296, 274, 356
				Scotswood Mussle 2nd ..	Jr. 2 yrs.	20745	5.11.29	273	6	4,541	4·89	221·85	200	
				Adella's Pet of Inverleigh ..	Mature	5853	6.12.29	273	24½	8,802	3·64	320·63	350	250, 243, 326, 383, 477, 373
				Wanda of Ben Kell.. ..	Mature	11352	7.12.29	273	13	6,356	4·53	288.04	350	227, 315, 350, 317
				Scotswood Modena 2nd ..	Jr. 2 yrs.	20734	24.12.29	273	12½	4,023	4·65	187·26	200	
H. A. Schier, Rochester	2	1	Jersey ..	Green View Janette ..	Jr. 4 yrs.	21649	13.10.29	273	5½	6,528	5·58	364·56	300	356, 315
				Princess 5th of Grangelea ..	Mature	18448	5.12.29	240	4	5,835	4·78	279·11	350	413, 429, 392
A. J. Schlipalius, Kilmany South	1	1	Jersey ..	Butterfly of Fairbanks ..	Jr. 4 yrs.	18962	20.12.29	273	14½	5,427	5·72	310·28	300	185, 313
T. J. Scott, Rochester	1	1	Jersey ..	Kyora Starbright	Mature	16308	20.11.29	273	21	8,715	4·35	378·69	350	164, 328, 371, 333, 311
T. Sebire, Wandin Yallock	1	..	Jersey ..	Freda of Moyaver	Mature	21680	14.11.29	240	4	5,370	5·84	313·66	350	
Dr. S. V. Sewell, Berwick	1	..	Guernsey	Rosewood Red Girl.. ..	Jr. 2 yrs.	..	16.12.29	273	11	3,212	4·56	146·34	200	

Standard Herd Records—*continued.*

Owner.	Records completed.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lb.
									lb.	lb.		lb.		
Dr. V. S. Sewell, Berwick	6	2	Friesian	Burnbank Dromenagh Patch	Sr. 4 yrs.	2375	27.9.29	273	7	8,130	3·45	280·10	325	
				Burnbank Piebe Domino ..	Mature	2132	30.9.29	273	7½	10,518	3·44	361·45	350	
				Winlaton Rosina	Jr. 4 yrs.	3285	8.10.29	273	7	7,085	3·22	247·20	300	
				Burnbank Pieterji Patch ..	Mature	2389	16.11.29	273	27	11,121	3·26	362·39	350	
				Winlaton Mona Burkeyje ..	Jr. 3 yrs.	..	20.11.29	273	7½	4,146	3·29	136·38	250	
				Burnbank Piebe Iona ..	Mature	2383	25.12.29	273	18½	8,622	3·07	264·69	350	
C. L. V. Sharp, Murrabit	2	..	Friesian	Rolleston Alcartra DeKol ..	Jr. 2 yrs.	3202	6.10.29	273	10	4,172	3·60	150·05	200	
				Rolleston Roma Alcartra ..	Jr. 2 yrs.	..	3.12.29	273	6½	2,240	3·85	86·35	200	
T. E. Simpson and Son, Ferntree Gully	2	2	Jersey ..	Wompini Bronze Wing ..	Jr. 2 yrs.	..	25.12.29	240	4	4,455	5·48	244·24	200	
				Matilda of Dalcbank ..	Mature	15063	28.9.29	273	14½	7,874	5.35	421.54	350	398
G. and W. Smith, Fish Creek	1	1	Jersey ..	Rydon Alice	Jr. 2 yrs.	26364	20.11.29	273	15½	5,385	5·96	320·98	200	
C. Bassett Smith, Kyabram	5	1	Red Poll	Temperley Rosita	Sr. 2 yrs	1648A	27.9.29	240	4	4,095	4·63	189·51	225	
				Victoria Warplane	Jr. 4 yrs.	1759B	29.9.29	240	4	7,230	3·78	273·65	300	288
				Victoria Wardove	Jr. 4 yrs.	1677A	6.10.29	240	4	5,430	4·56	247·79	300	282
				Flowing Vale Astroletta ..	Jr. 3 yrs.	..	26.10.29	273	15	6,491	4·18	271·13	250	
				Bahama	Mature	238A	1.12.29	273	24½	7,692	3·86	297·01	350	294, 245
F. P. Stephens, Tongala	2	2	Jersey ..	Fourshells Princess Hope ..	Jr. 2 yrs.	..	9.10.29	273	22	7,581	5·28	400·06	200	
				Aveley Lettie 4th	Jr. 3 yrs.	26294	17.10.29	273	10½	6,405	6·06	387·92	250	346
Geo. Taylor, Caldermeade	4	2	Ayrshire	Letty of Gleneira	Jr. 3 yrs.	18073	4.10.29	180	4	4,170	4·24	176·69	250	233
				Eldorado Sheila	Jr. 2 yrs.	17797	10.11.29	273	12	6,246	4.08	255·10	200	
				Eldorado Hilary	Sr. 2 yrs.	17795	11.11.29	273	12	5,889	4·40	259·00	225	262
				Gowrie Park Sherlie ..	Mature	18160	13.12.29	240	4	7,140	3·42	244·02	350	247, 238
Telford Bros., Kyabram	2	2	Ayrshire	Oakbank Clare	Jr. 4 yrs.	18724	28.11.29	273	15	8,135	4·08	332·25	300	290
				Dolly 4th of Glengowrie ..	Mature	5999	18.12.29	273	29½	11,192	4·06	454·66	350	376, 429, 513, 546, 488, 571

STANDARD HERD RECORDS—*continued.*

Owner.	Records completed.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lb.
									lb.	lb.		lb.	lb.	
T. H. Trigg, Dennington	3	1	Jersey ..	Lipook Little Annie ..	Jr. 3 yrs.	25636	10.10.29	273	6½	6,176	4·64	286·64	250	
				Lipook Buttercup	Jr. 2 yrs.	..	21.10.29	273	6	3,623	5·44	197·24	200	
				Sylvia 4th Mayflower ..	Sr. 4 yrs.	4554	11.12.29	210	4	3,060	4·82	147·48	325	
J. F. Tuckey, Alberton	1	1	Ayrshire	Tregorland Kristina ..	Sr. 2 yrs	19081	28.9.29	273	10	6,137	4·87	299·07	225	281
W. Tulloch, Kongwak	4	..	Ayrshire	Toolleen Mermaid	Jr. 4 yrs.	14883	29.9.29	240	4	6,210	3·88	240·90	300	
				Quality of Ayr Brae ..	Mature	12558	1.11.29	273	17½	7,259	3·94	285·81	350	
				Pyramid View Ruth 2nd ..	Sr. 2 yrs.	20661	22.10.29	150	4	3,143	3·85	121·01	225	
				Dairymaid of Rockfield ..	Mature	8251	27.12.29	273	7½	5,252	4·20	220·67	350	
E. J. Vagg, Leongatha	1	1	Jersey ..	Lady of Queen's Vale ..	Mature	19963	1.11.29	273	26	7,605	5·94	451·80	350	431, 451
Mrs. F. E. Vale, Yarram	2	..	Jersey .	Brookfield Verbena 17th ..	Jr. 2 yrs.	..	27.10.29	210	4	1,750	5·49	96·05	200	
				Marimba Countess Fancy ..	Jr. 2 yrs.	..	28.10.29	273	N.O.C.	3,295	5·11	168·31	200	
Vaughan Bros., Girgaree	2	2	Jersey ..	Lynroy Fairy 3rd	Sr. 3 yrs.	24631	9.11.39	273	13	7,202	5·66	407·65	275	
				Lynroy Nancy 3rd	Sr. 2 yrs.	26269	30.11.29	273	19½	6,782	6·28	425·98	225	
D. Wadelton, Loch	11	9	Ayrshire	Gleneira Acute	Jr. 3 yrs.	18016	2.10.29	273	15	7,642	4·12	314·84	250	
				Gleneira Honeymoon ..	Jr. 3 yrs.	18053	8.10.29	273	11½	6,042	4·12	248·90	250	
				Dalblair Bonny Scot ..	Jr. 2 yrs.	21285	8.10.29	273	4	3,825	4·44	169·91	200	
				Lady McBeth of Gleneira ..	Mature	8442	1.10.29	273	4	10,705	3·39	362·61	350	359
				Dalblair Louise Pride ..	Jr. 2 yrs.	19811	12.10.29	273	5	4,174	3·98	166·25	200	
				Kyla of Gleneira	Mature	11748	14.10.29	273	18	10,802	3·97	428·41	350	
				Dalblair Lime	Jr. 2 yrs.	19810	16.10.29	273	12½	6,004	4·03	241·86	200	
				Dalblair Alice	Jr. 3 yrs.	17719	2.10.29	273	12¾	7,401	3.97	293·73	250	263
				Gleneira Princess Vera ..	Jr. 2 yrs.	20152	24.10.29	273	14½	5,725	3·99	228·34	200	
				Gleneira Nectar	Jr. 4 yrs.	16127	30.10.29	273	10½	7,233	4·43	320·71	300	
				Dalblair Scotch Lassie ..	Jr. 2 yrs.	21291	30.10.29	273	16	6,047	4·35	263·07	200	

Standard Herd Records—*continued.*

Owner.	Records completed.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lb.
									lb.	lb.		lb.	lb.	
C. S. Walker, Swan Hill	4	3	Jersey ..	Warwick Princess Ivy ..	Sr. 3 yrs.	26271	30.10.29	273	13½	7,607	4·52	344·09	275	320
				Warwick Queenie	Jr. 2 yrs.	26273	17.10.29	273	11½	4,881	4·83	235·93	200	
				Brunette 19th of King's Vale	Mature	18596	18.12.29	273	22	6,921	5·30	366·99	350	234, 318, 322
				Warwick Pollyana	Mature	17505	23.10.29	273	7½	7,346	4·52	332·33	350	311, 353
A. Wallace, Bendigo	1	1	Ayrshire	Spring Dale Lady	Sr. 2 yrs.	18939	14.11.29	273	8	6,507	3.91	254.60	225	
Walsh Bros., Lyndhurst	3	..	Red Poll	Victoria Plush	Jr. 4 yrs.	1669A	27.10.29	240	4	4,470	3·96	177·20	300	
				Karong Lady 7th	Jr. 4 yrs.	2582D	11.11.29	273	10½	5,721	4·36	249·45	300	213
				Karong Lily 4th	Jr. 4 yrs.	1804C	11.12.29	273	14½	6,467	4·35	281·28	300	246
High School, Warragul	2	2	.. ..	Vic Highland Fling ..	Mature	915C	8.12.29	273	34	12,198	3·51	427·64	350	346, 310, 406, 511, 509, 551, 296
				Gipps Rosette .. .	Jr. 2 yrs.	2186A	14.12.29	273	21½	5,591	3·66	204·38	200	
J. S. Watts, Stanhope	2	2	Jersey ..	Kantara Jessica	Sr. 2 yrs.	24580	12.11.29	273	19	6,087	5·34	325·15	225	
				Kantara Violette	Jr. 2 yrs.	26205	14.12.29	273	17½	5,859	5·21	305·44	200	
H. Watson, Leongatha	1	..	Jersey ..	Moyaver Lyddy	Jr. 4 yrs.	..	27.11.29	273	9½	4,782	5·55	265·49	300	
H. L. Webb, Sunbury	3	..	Ayrshire	Holly Green Quiver ..	Jr. 3 yrs.	18276	23.11.29	270	5	4,650	4·42	205·39	250	166
				Lily's Queen of Holly Green ..	Mature	11495	12.11.29	273	13	7,749	4·18	323·84	350	252, 404, 388, 341, 331, 410, 329
				Holly Green Quests Queen ..	Jr. 2 yrs.	20340	5.11.29	273	9	3,844	3·60	138·47	200	
W. O. Westlake, Portland	5	5	Jersey ..	Homebush Queen	Jr. 2 yrs.	..	10.11.29	273	14½	5,714	5·06	289·26	200	
				Grangelea Pansy 2nd ..	Sr. 3 yrs.	23005	14.11.29	273	14½	6,828	5·52	376·67	275	325, 356
				Homebush Duchess ..	Jr. 2 yrs.	..	22.11.29	273	N.O.C.	6,281	4·60	288·80	200	
				Pansy of Grangelea ..	Mature	18649	4.12.29	273	13½	8,049	4·67	376·25	350	347, 343, 326
				Ranee of Cloverfield ..	Mature	21741	22.12.29	273	21	7,895	5·13	404·90	350	358, 365
R. S. Williams, Kongwak	2	1	Jersey ..	Linga Longa Cloudy 2nd ..	Jr. 3 yrs.	..	4.10.29	273	4	4,949	6·97	345·04	250	292
				Linga Longa Colleen ..	Jr. 4 yrs.	25257	6.12.29	210	4	4,455	5·94	264·44	300	302

STANDARD HERD RECORDS—*continued.*

Owner.	Records completed.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lb.
									lb.	lb.		lb.	lb.	
A. C. Willis, Paschendale	4	1	Jersey ..	Fortune Teller of Murndal ..	Mature	21756	6.11.29	273	9	4,902	5·55	271·85	350	296
				Queen's Beauty of Clover Flat	Mature	16354	26.11.29	273	14½	5,097	4·82	245.44	350	
				Carney Dell Bonnie Lass ..	Jr. 2 yrs.	..	1.10.29	240	4	5,745	4·09	234·99	200	
				Carney Dell Lady Lass ..	Jr. 2 yrs.	..	7.10.29	273	5½	2,898	5·48	158·92	200	
D. C. Wilson, Derrinallum	1	..	Jersey ..	Elaine 7th of Melksham Park	Mature	13051	18.10.29	273	6	5,747	5·31	305·02	350	
J. V. M. Wood, Heidelberg	6	6	Jersey ..	Werribee's Fancy Maderia ..	Mature	17715	10.10.29	273	31	11,285	5·73	646·98	350	486, 512
				Clarendon Eyre Aunt Chloe ..	Jr. 3 yrs.	24671	30.10.29	273	16	7,275	5·18	377·02	250	290
				Tressy of Sunny Ford ..	Mature	16766	3.11.29	273	23	8,350	6·32	527·43	350	402, 461
				Clarendon Eyre Marguerite ..	Jr. 3 yrs.	26288	11.11.29	273	16½	7,691	4·76	365·83	250	291
				Clarendon Eyre Gaiety Girl ..	Jr. 2 yrs.	..	19.11.29	273	11½	4,217	6·45	271·94	200	
				Clarendon Eyre Rose Marie ..	Jr. 2 yrs.	..	3.12.29	273	22½	7,007	5·24	367·01	200	
W. Woodmason, Oakleigh	4	4	Jersey ..	Melrose Jessie 52nd ..	Jr. 2 yrs.	..	7.11.29	273	9½	3,717	5·65	209·83	200	
				Melrose Jenny Lind 23rd ..	Jr. 2 yrs.	..	9.11.29	273	19½	6,432	5·45	350·38	200	
				Lassie Fowler 13th of Melrose	Mature	16787	14.12.29	273	28½	7,479	6·00	448·39	350	218, 366, 324, 462
				Graceful Duchess 44th ..	Sr. 2 yrs.	25696	18.12.29	273	18	5,196	6·09	316·35	225	235
G. T. Young, Sedgwick	5	5	Jersey ..	Preston Sunray	Sr. 3 yrs.	23547	28.9.29	273	21½	8,165	5·63	459·81	275	
				Preston Golden Elf ..	Mature	21803	11.10.29	273	17	8,402	5·19	436·13	350	
				Preston Defender's May ..	Mature	21800	3.11.29	240	4	7,267	5·22	379·11	350	
				Preston Daffodil	Jr. 2 yrs.	..	13.11.29	273	20	6,888	5·20	358·30	200	
				Preston Boronia	Jr. 3 yrs.	26470	16.11.29	273	21	7,584	5·05	383·15	250	

ERRATA.

List of Competing Herds, &c., 1929–30—

Page 11 :—

Herd of J. Canobio, Bena.

Previous yield of Doris of Glen Erin should read 364 lb. fat.

" " Sunshine of Glen Erin should read 306 lb. fat.

" " Flower of Glen Erin should read 400 lb. fat.

Page 72, R. S. Williams's cow Dumfries Star's Improvess, Age Standard should read Sr. 2 yrs.

PROSECUTIONS UNDER FERTILIZERS ACT, 1928.

Fertilizer with Inferior Form of Nitrogen.

At the Geelong Court of Petty Sessions, on the 30th of September, the Corio Trading Co. Pty. Ltd, of Bacchus Marsh-road, Corio, was charged with having sold a parcel of Corio blood and bone manure which was adulterated with nitrgen inferior to that specified on the label. The case was heard by Mr. O'Grady, P.M., and Honorary Justices. Mr. Gorman, assistant to Crown Solicitor, appeared for the prosection, and Mr. McDonald for the defendant company.

Mr. W. C. Robertson, chemist, of the Department of Agriculture, stated that analysis showed the fertilizer in question to be adulterated with sulphate of ammonia, a form of nitrogen of less commercial value than nitrogen in the form of blood and bone. The company was convicted, and fined £2, with £4 7s. 10d. costs.

The fertilizer was also shown to contain less nitrogen as blood and bone than was stated on the label, and the company was also charged with this offence, and, on pleading guilty, was fined £3, with £2 5s. 10d. costs.

Fertilizer Below Guarantee.

In the same Court, Harvey Dann & Co., of Geelong, was charged with having sold a fertilizer "Sickle in diamond superphosphate and bone No. 2" that was deficient in phosphoric acid by more than the prescribed limit. Mr. Wilson appeared for the defendants.

Mr. Robertson, chemist, stated that, whereas the guaranteed total phosphoric acid, as shown on the label, was 20.90 per cent., an analysis of the fertilizer showed it to contain 19.68 per cent.

The defendant company pleaded guilty, and was fined 25s., with £3 17s. 4d. costs.

YOU NEED EVERY LB. OF WOOL NOW—*Get it!*

Offset the lower price with a larger clip. You may have no more sheep than in past years but machine-shearing will give you more wool—and that means more money.

Here is an outfit that enables the "smallest" owner to enjoy the advantages of machine-shearing. The machine, as will be seen, bolts to a post, to be driven by an engine or electric motor. It has fast and loose telescopic pulleys, jointed down-tube and shear exactly as supplied with our larger plants. The grinder automatically sharpens combs and cutters as you turn the handle. All items illustrated are supplied, so that you get a complete outfit.

Cooper

Post-Type Shearing Outfit

FOR SMALL FLOCKS

Price (as illustrated) - £22/10/-
With Power Grinder - £28/10/-

COOPER ENGINEERING CO. LTD.

546 LIT. BOURKE ST. MELBOURNE

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129 Sussex St., Sydney

COOPER'S ALBOLEUM

(White Oil Emulsion)

FOR CONTROL OF SCALE AND INSECT PESTS

ON TREES IN LEAF

FOR SAFETY AND EFFICIENCY

COOPER'S ALBOLEUM IS UNSURPASSED BY ANY OTHER SPRAYING OIL

ALBOLEUM CONTROLS RED SPIDER

Obtainable in { 5-gallon Drums / 2-gallon Tins

Used in conjunction with Arsenate of Lead, Alboleum gives additional control of Codling Moth

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THE WORLD'S BEST ARSENATE OF LEAD

IS

COOPER'S ARSINETTE

THE SUPERIORITY OF ARSINETTE LIES IN—

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2.—ITS EXTRAORDINARY FINENESS
3.—ITS EVEN COVERING POWER
4.—ITS TENACIOUS STICKING QUALITY

Obtainable in { 56-lb. Cases (14 4-lb. packets) / 25-lb. Containers

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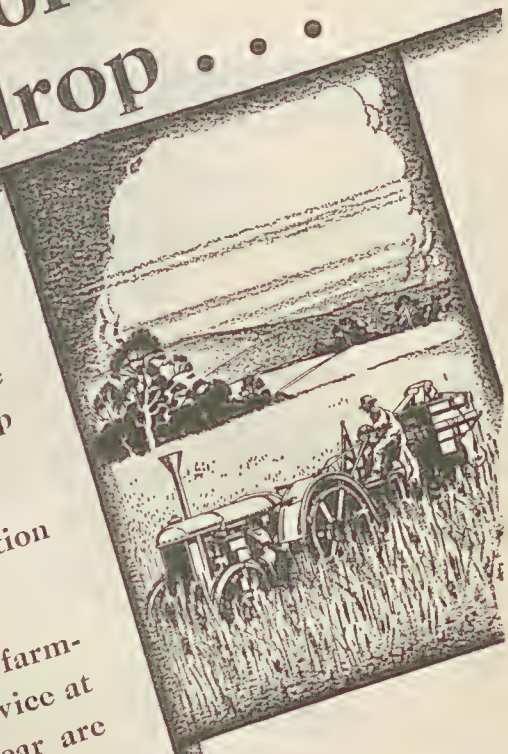

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